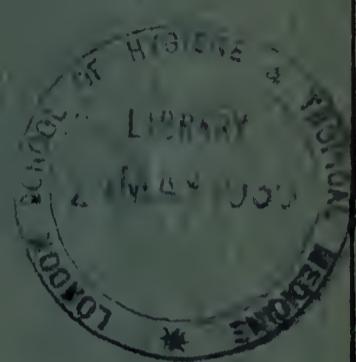


Issued as Sessional Paper No. 7 of 1938.



NIGERIA



ANNUAL REPORT
ON THE
MEDICAL SERVICES
1936

Printed and Published by the Government Printer, Lagos
purchased at the C.M.S. Bookshops, Lagos and Port Harcourt, the S.I.M.
shop, Jos, and the Crown Agents for the Colonies, 4 Millbank, London, S.W.1.

Price : Nine Shillings



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3321/37

CONTENTS.

	Page.
I. ADMINISTRATION :—	
A. Staff	1
B. Legislation	1
C. Financial	3
II. PUBLIC HEALTH :	
A. General Remarks	4
(i) General Diseases	5
(ii) Communicable Diseases	5
B. Vital Statistics.	
(1) General	7
(2) Population	8
(3) Births	9
(4) Deaths	10
(5) Infant Mortality	11
(6) Still-births	11
(7) Maternal Mortality	11
(8) Mortality according to Sex	12
(9) Mortality according to Age	12
(10) Certification of Deaths	12
(11) Causes of Death	12
(12) Mortality in Non-natives	14
(13) Morbidity in Non-natives	14
(14) Morbidity in Native Officials	16
(15) Morbidity in Nigeria Regiment, R.W.A.F.F. (Africans)	17
(16) Morbidity in Nigeria Police (Africans)	17
III. HYGIENE AND SANITATION :	
A. General review of work and progress.	
(i) Preventive Measures	18
(ii) General Measures of Sanitation ...	28
(iii) School Hygiene	31
(iv) Labour Conditions	33
(v) Housing and Town Planning	33
(vi) Sanitation in Mines Areas	34
(vii) Rural Sanitation	35
(viii) Food in relation to Health and Disease	35
B. Measures taken to spread knowledge of Hygiene and Health.	
(i) Training of Health Personnel	38
(ii) General Health Education	39

CONTENTS—*continued.*

		Page.
IV.	PORT HEALTH WORK ...	40
V.	MATERNITY AND CHILD WELFARE ...	41
VI.	HOSPITALS AND DISPENSARIES:	
	A. Hospitals and Hospital Statistics ...	43
	B. Native Administration Dispensary System	47
	C. Medical Work of Religious Missions ..	49
	D. Dental Report ...	49
	E. Surgical Operations ...	50
	F. X-Ray Departments ...	53
VII.	PRISONS AND ASYLUMS ...	54
VIII.	METEOROLOGY ...	55
IX.	SCIENTIFIC ...	56

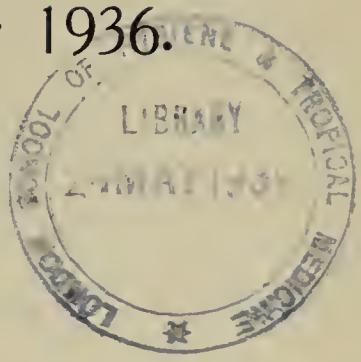
RETURNS.

TABLE I.	Establishment ...	59
TABLE II.	Financial ...	3
TABLE III.	Meteorological Returns ...	56
TABLE IV.	Return of Diseases and Deaths, Europeans ...	61
TABLE V.	Return of Diseases and Deaths, Non-Europeans ...	71

APPENDICES.

A.	Report upon Laboratory Service...	83
B.	Report upon Sleeping Sickness Service ...	93
C.	Report on the Medical and Pharmacy Schools	101
D.	Notes relating to "Lines" or Collections of buildings for the housing of Labourers ...	103

Report on the Medical Services for the Year 1936.



I.—ADMINISTRATION.

A.—STAFF.

APPOINTMENTS, PROMOTIONS, CHANGES, ETC.

Sir Walter B. Johnson, C.M.G., Director of Medical Services, retired on the 28th of September, 1936, after twenty-four years of very distinguished service in Nigeria, and Dr. R. Briercliffe, on transfer from Ceylon, succeeded him. Dr. J. W. Thomson, Deputy Director of Medical Service, was invalidated from the service on 31st December, 1935, and Dr. D. T. Birt, Assistant Director of Medical Service, retired on the 11th of June, 1936. They were succeeded by Dr. W. E. Glover and Dr. G. E. Craig respectively.

2. Dr. J. M. Mackay, Acting Deputy Director of Health Service, was transferred on promotion to the Gold Coast and Dr. P. S. Selwyn-Clarke from the Gold Coast assumed duties as Deputy Director of Health Service on the 2nd of July, 1936.

3. Dr. E. C. Braithwaite, Senior Specialist, received the award of the O.B.E. on the occasion of His Majesty's Birthday.

4. The death in Nigeria of one Medical Officer, Dr. J. Barclay, is recorded with deep regret.

B.—LEGISLATION.

LIST OF ORDINANCES, REGULATIONS AND ORDERS IN COUNCIL AFFECTING PUBLIC HEALTH DURING THE YEAR 1936.

ORDINANCES.

Serial No.	Date.	Short Title and application.	Provisions.
42	1.10.1936	The Poisons and Pharmacy Ordinance.	Regulating the Sale of Drugs and Poisons and providing for the Registration and Licensing of Dispensers and of Chemists and Druggists.
27	1.10.1936	The Public Health (Amendment) Ordinance.	Repealing Section 2 of the Public Health Ordinance and providing powers for the application by Order in Council to any area of any of the provisions of this Ordinance.

REGULATIONS.

Serial No.	Date.	Ordinance made under.	Provisions.
43	23.11.1936	The Births, Deaths and Burials Ordinance.	Substituting new forms for the Registers of Births and Deaths.
27	31.8.1936	The Hospital fees Ordinance.	Amending the rates of hospital fees.
9	25.2.1936	The Quarantine Ordinance.	Applying the provisions of the International Sanitary Convention for Aerial Navigation, 1933.
41	16.11.1936	do.	Providing a scale of overtime fees for certain quarantine officers.

ORDERS-IN-COUNCIL.

Serial No.	Date.	Short Title.	Provisions.
16, 17, 74, 77 & 78	...	The Births, Deaths and Burials Ordinance.	Defining the boundaries of certain burial grounds.
47	...	do.	Providing for the registration of births and deaths in Enugu township.
8, 21, 22, 23, 24, 40 & 81	...	The Public Health Ordinance.	Applying the provision of the Ordinance and of certain Rulings under the Ordinance to various townships and areas.
30 & 82	...	do.	Conferring on certain native courts powers to impose penalties under the Ordinance.
28	...	The Vaccination Ordinance.	Providing for the vaccination of all unprotected persons in certain areas.

RULES.

Serial No.	Date.	Ordinance made under.	Provisions.
3	...	The Midwives Ordinance.	Authorising the examination and registration fees to be paid by midwives.
6, 10 & 12	...	The Public Health Ordinance.	Amendments to Rules.

C.—FINANCIAL.

CALENDAR YEAR, 1936.

TABLE II.

	REVENUE.	£	s.	d.
Medical Receipts	...	7,719	12	1
Births and Deaths Registration Fees	...	17	4	6
Fumigation and Deratisation Fees	...	147	8	4
Sale of Departmental Stores (Medical)	...	1,055	0	0
Sale of Anti-Rabic Vaccine	...	10	6	6
Total	...	£8,949	11	5

EXPENDITURE.

(a) Personal Emoluments	...	239,375	6	9
(b) Other Charges :—				
(1) MEDICAL.		£	s.	d.
Medical, Surgical, Dental and X-Ray Equipment and Laundry...	...	32,081	15	9
Hospital Diets	...	10,483	10	2
		42,565	5	11
(2) LABORATORY.				
General Laboratory	...	1,790	12	0
(3) HEALTH.				
General Sanitary	...	27,566	3	11
(4) GENERAL.		£	s.	d.
Railway Transport	...	9,783	17	1
Other items under Other Charges	...	46,532	11	10
		56,316	8	11
(c) Special Expenditure :—				
Tsetse Fly Investigation	...	2,848	5	1
Sleeping Sickness Service Team and Drugs	...	13,203	13	5
Anti-Plague Measures	...	3,813	3	4
Other items under Special Expenditure	...	1,549	19	2
		21,415	1	0
Total Actual Expenditure...	...	£389,038	18	6

5. These amounts represent the nett expenditure after deducting reimbursements credited.

6. The following figures show the estimated and actual expenditure of Medical Services for the past seven years, omitting expenditure by Native Administrations.

Year.	Budget Estimate.		Actual Expenditure.
	£	£	£
1930-31	...	527,855	485,940
1931-32	...	523,118	441,590
1932-33	...	433,816	384,743
1933-34	...	433,756	391,340
1934-35	...	401,711	384,722
1935-36	...	386,956	377,671
1936-37	...	392,467	—

II.—PUBLIC HEALTH.

A.—GENERAL REMARKS.

7. An administrative change of much significance as an indication of future policy, took place in October when the Lagos Town Council appointed Dr. I. L. Oluwole as the first Medical Officer of Health, Lagos, to work directly under the Council. Previously Government Medical Officers of Health had been seconded to the Lagos Town Council.

8. The conditions of employment of Junior Medical Officers were revised during the year under review. The scheme which had been in force for nearly nine years, whereby newly qualified doctors were engaged by Government and given an opportunity of acquiring clinical experience and skill in the larger hospitals, had proved its usefulness, but with the greater number of Africans qualifying in medicine in the United Kingdom now-a-days, it was apparent that only a small proportion of them could hope to obtain positions as Junior Medical Officers under the existing terms of service. In order, therefore, to extend the benefits of the training and experience given to Junior Medical Officers to as many young African doctors as possible, the number of appointments was increased from two to six and the period of service reduced from two years to one at a salary of £200 instead of £400 per annum, and on the understanding that no guarantee of permanent employment could be given.

9. The Medical Assistants trained in the Medical School at Yaba have been very useful to the Medical Officers of the hospitals to which they have been attached. Eleven students obtained the Medical Assistant's Certificate in 1936, and the number of Medical Assistants employed in the Department was increased from six to seventeen during the course of the year.

10. The future use of the ten motor ambulances, which were purchased from the Colonial Development Fund four years ago to link the dispensary system with hospitals, has recently been under review. The majority have now been taken over and will be maintained by the Native Administrations concerned. In cases where an ambulance has not fully proved its value future measures are under consideration.

The Health Propaganda van equipped with cinema and loud speaker has been of immense value and it has been impossible to meet all the requests for visits and demonstrations by it.

11. The following table shows a slight decrease in the number of African out-patients in 1936 as compared with 1935 but a further large increase of in-patients. The in-patient figure has risen from about 40,000 to 60,000 during the past five years.

Total cases treated.	1933.	1934.	1935.	1936.
EUROPEANS :—				
In-patients	1,030	1,065	1,002	1,116
Out-patients	6,058	6,968	6,876	7,176
Total Europeans	7,088	8,033	7,878	8,292
AFRICANS AND OTHER NON-EUROPEANS :—				
In-patients	45,233	47,947	52,126	60,098
Out-patients	570,607	594,555	667,192	650,209
Total Africans	615,840	642,502	719,318	710,307

12. In addition to the above, 1,006,833 patients received treatment at Native Administration dispensaries during 1936 as compared with 819,068 in 1935; and 62,021 cases of sleeping sickness were treated by the Sleeping Sickness Survey Teams. There are now 300 dispensaries supported by the Native Administrations and year by year they become increasingly popular but the original conception of developing them into local health centres is being applied only very slowly.

I.—GENERAL DISEASES.

13. A return of diseases and deaths for 1936 is given in Tables IV and V on pages 61 to 79. The incidence of certain disease groups is shown in diagrammatic form elsewhere in this Report.

14. The following figures are of interest in connection with the large number of invalidings for neurasthenia of Europeans stationed in Nigeria.

Year.	OFFICIALS.			NON-OFFICIALS.		
	No. of invalidings.	No. of cases of Neurasthenia.	Rate.	No. of invalidings.	No. of cases of Neurasthenia.	Rate.
			%			%
1933	100	23	23	17	1	6
1934	100	20	20	23	2	9
1935	95	26	27	92	15	16
1936	100	17	17	41	9	22

15. On account of the smallness of the above figures, it is doubtful whether the variation in the rate from year to year has any statistical significance, but over the four year period for both officials and non-officials, 20% of the invalidings have been on account of neurasthenia. No satisfactory explanation of the cause of this high rate has been found.

II.—COMMUNICABLE DISEASES.

1.—MOSQUITO OR INSECT BORNE.

16. *Malaria*.—The following table shows the hospitalisation figures for malaria and blackwater fever during the past three years:—

	1934.		1935.		1936.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
EUROPEANS :—						
Malaria	1,025	2	947	1
Blackwater	16	5	10	5
AFRICANS AND NON-EUROPEANS :—						
Malaria	35,486	52	39,508	48
Blackwater	20	3	27	7
					38,671	55
					19	2

17. *Trypanosomiasis*.—In Appendix B an account is given on the efforts that have been made to check the spread of sleeping sickness. Preventive measures are to be organised on a more comprehensive scale than formerly, and the schemes mentioned in last year's report for protective clearings and for the concentration of population from scattered farm hamlets in infected areas, into larger village units in protected areas, are to be given an extensive and careful trial.

2.—INFECTIOUS DISEASES.

18. The incidence and control of the various infectious diseases are set out in Section III.

Venereal diseases and yaws.—Venereal disease is very common throughout the whole country. The incidence of gonorrhœa is excessive everywhere, but syphilis is most prevalent in the north where yaws is comparatively rare. Apart from improvement in the hospital and dispensary facilities for the treatment of gonorrhœa and syphilis, little progress has been made in dealing with the venereal diseases problem. Under the Brussels Agreement, the usual clinics have been maintained at the seaports, and the early treatment centre at Apapa Wharf (Lagos) has been made full use of by sailors.

19. Yaws occurs in most parts of Nigeria but it is in the Southern Provinces that its incidence is particularly high. It is a disease of the "bush" rather than of the towns and in several areas where an intensive campaign of injections has been carried out the incidence of new cases is falling. Both the arsenobenzols and bismuth preparations are used in treatment, but where, as in the Cameroons, injections are given by unqualified and poorly trained persons, only the bismuth injections are employed. Government is aware of the dangers and abuses associated with the giving of injections by unqualified persons and is taking steps to control and regularise the practice.

20. The numbers of patients treated in hospitals and dispensaries during the past five years have been as follows:—

	1932.	1933.	1934.	1935.	1936.
Yaws	80,675	86,748	119,728	123,803	110,588
Syphilis	19,481	16,286	13,439	13,361	18,432
Gonorrhœa	12,975	15,180	16,563	15,514	16,386

21. *Leprosy.*—The visit of Dr. Ernest Muir of the British Empire Leprosy Relief Association, in May, 1935, has done much to focus attention on the very serious leprosy problem existing in Nigeria, and the recommendations contained in Dr. Muir's report are likely to form the basis of the future leprosy policy. These recommendations envisage a continuance and expansion of the present system of Settlements on a provincial basis under Medical Mission management, and the policy of placing Medical Missions in technical charge of the Native Administration leper settlements has therefore continued. During the course of the year, the Maiduguri and Baba-Ruga Settlements were handed over to the Sudan United Mission and the Sudan Interior Mission respectively, while arrangements were being made for the Sudan Interior Mission to take charge of the Sumaila and Sokoto Settlements and the Church Missionary Society of the Zaria Settlement. The old type of leper camp, which was little more than a refuge, is gradually disappearing as the Missions take over a greater share of the management. Dr. Helser of the American Mission to Lepers has continued to do valuable co-ordinating work and to encourage and advise the various Missions in charge of leper colonies.

22. The number of lay workers provided for leprosy work by Toc H. and the British Empire Leprosy Relief Association was increased during the year from five to seven, and their services are proving of much use.

23. In addition to the treatment given in the Leper Settlements, considerable out-patient treatment for non-segregated patients is provided by hospitals and dispensaries throughout Nigeria. Particulars

of the Leper Colonies and Settlements are set out in the following table which, however, does not include six or seven small leper camps of less than twenty patients each:—

Province.	Place.	Financed by.	Controlled by.	Approximate number of patients resident.
NORTHERN PROVINCES.				
Adamawa ...	Garkida	Govt. and N.A.	Church of the Brethren Mission	500
Bauchi ...	Azare	N.A.	Govt. Medical Officer	31
	Gelengu	"	Native Administration	36
Benue	Mkar	"	Dutch Reformed Church	223
Bornu	Maiduguri	"	Sudan United Mission	240
Kano	Sumaila	"	Native Administration	160
Katsina	Baba-Ruga	"	Sudan Interior Mission	253
Plateau	Vom	"	Sudan United Mission	41
Sokoto	Gusau	"	Govt. Medical Officer	31
Zaria	Zaria	"	N.A. and C.M.S.	159
SOUTHERN PROVINCES.				
Abeokuta ...	Iberekodo	N.A.	Govt. Medical Officer	45
	Abeokuta	Catholic Mission	Catholic Mission	22
Benin	Ossiomo	N.A.	Native Administration	214
Calabar ...	Itu	Govt. and N.A.	Church of Scotland	1,500
	Ekpene Obom	N.A.	Qua Iboe Mission	370
Cameroons ...	Bamenda	"	Govt. Medical Officer	150
Ogoja	Abakaliki and Aboyen	Self Supporting	" " "	38
Onitsha ...	Onitsha	Government	" " "	111
Owerri	Oji River	N.A.	Church Missionary Society	60
Oyo	Uzuakoli	Govt. and N.A.	Methodist Mission	901
	Ogbomosho	N.A.	American Baptist Mission	108
	Ilesha	"	Wesley Guild	34
COLONY.				
Lagos	Yaba	Government	Government	72
			Total	5,299

N.A. = Native Administration.

B.—VITAL STATISTICS.

(1) GENERAL.

24. In considering the data furnished in this section of the Report certain factors should be borne in mind. First, although non-native births and deaths occurring throughout the Colony, the Protectorate and the Mandated Territory are registrable, those affecting natives are only registrable when taking place in the five registration areas of Lagos and Ebute Metta in the Colony, Calabar and Port Harcourt in the Southern Provinces and Kano Township in the Northern Provinces.

25. Secondly, and arising out of the above, the areas included in the five registration districts form a very small portion of Nigeria as a whole, and the sum of the population of such districts amounts to little more than one *per centum* of the estimated population of the Colony and its dependencies.

26. For this reason it would be unwise to draw any firm inferences from the available statistics and due regard should be paid to this in evaluating such data as have been collected. To quote but

one instance, seven deaths were registered as being due to smallpox in 1936, whereas 611 deaths from this disease were notified from areas to which the system of death registration has not yet been applied.

27. It might, perhaps, be well to mention that representations were made to the local Administrations during the year under review which will result in data being collected in 1937 from several additional areas which will be brought within the scope of the "Births, Deaths and Burials Ordinance" during the year. In course of time, it is to be hoped that registration will be extended to all the major townships in Nigeria. In this way valuable information should be available on the subject of mortality of different age-sex groups, etc., thus assisting to supply the facts necessary to enable schemes to be drawn up which aim at preventing sickness and premature death and at ensuring the full enjoyment of a healthy life.

(2) POPULATION.

28. In a country so vast as Nigeria peopled with such a large number of persons lacking any sort of education and realisation of the value of demographic details, it would be vain to expect the census figures to be anything but a mere approximation of the truth. Hence, the estimate given in Table 1 below must be accepted with a certain amount of reserve. The estimate is computed on an arithmetical basis from the figures for the 1921 and 1931 census.

TABLE 1.

Population.

	1921 Census.	1931 Census.	1935 (mid year).	1936(mid year).
Southern Provinces	7,856,297	7,793,355	7,793,355	7,793,355
Northern Provinces	10,332,365	11,434,924	11,903,512	12,013,767
Cameroons under British Mandate	294,161	374,872	409,174	417,245
Totals	18,482,823	19,603,151	20,106,041	20,224,367

29. Owing to the doubt existing as to whether the population had actually diminished in the Southern Provinces during the intercensal period 1921-1931, the census population is given and not one based on the later census. It is hoped that after the next census in 1941 sufficient information will be at hand to make it possible to arrive at an accurate measurement of the age-sex constitution of the population. Until then it will be only practicable to calculate crude rates of mortality and morbidity.

30. One point emerges in studying on the spot the distribution of the population, namely, that whilst urbanisation is taking place in centres of trade and industry, there is a tendency to counterbalance this migration into the towns by an emigration from towns into the country-side which has become safe and friendly, in a manner of speaking, from the extension of "Pax Britannica" and the development of a regular net-work of roads. The day of the old walled town is fast passing and it is only a matter of time before it may be found necessary to preserve a portion of the walls of cities and their gates as historical reminders of that unsettled era when man was exposed to attack from animals and his fellow-men whenever he set foot outside the city.

31. It remains to be added that, if any reliance can be placed upon the accuracy of the census enumeration, the population of Nigeria is increasing very slowly compared with that in other parts of West Africa. The actual increase amounts to less than 120,000 souls or 6 per thousand of the population per annum.

32. The population of the five registration districts is shown in Table 2 given below, that for 1935 being added for purpose of comparison.

TABLE 2.

Town.	Population, 1935. Estimated mid-year.	Population, 1936. Estimated mid-year.
Calabar	17,169	17,291
Kano Township ...	8,907	9,204
Ebute Metta ...	20,294	20,740
Lagos	137,336	139,977
Port Harcourt ...	18,608	19,409
 Totals ...	 202,314	 206,621

(3) BIRTHS.

33. There was a falling off in the number of live births registered in the five registration districts in 1936 as compared with that of the previous year, the actual figures being 5,153 and 4,895 in 1935 and 1936 respectively, giving combined crude birth-rates of 25.4 and 23.7 per thousand living persons. The natural increase of births over deaths fell from 2,094 in 1935 to 1,854 in 1936. It would be erroneous to deduce from the above that the women of Nigeria were becoming less fertile or that health factors had deteriorated leading to a greater number of mis-carriages or still-births.

34. Birth registration depends to a great extent on the interest taken by the local Health Authorities in this aspect of public health work, since the general public still require a stimulus to persuade them to register the births of their children.

35. Table 3 indicates where this decrease in the numbers of births registered took place and also gives details of the crude and uncorrected birth-rates.

TABLE 3.
1935.

Town.	BIRTHS.			Birth-rate per 1,000.
	Male.	Female.	Total.	
Calabar	127	119	246	14.3
Kano Township ...	65	73	138	15.5
Ebute Metta ...	447	496	943	46.5
Lagos	1,821	1,706	3,527	25.7
Port Harcourt ...	145	134	279	15.0
 Totals ...	 2,605	 2,528	 5,133	 25.4

1936.

Town.	BIRTHS.			Birth-rate per 1,000.
	Male.	Female.	Total.	
Calabar	145	158	303	17.6
Kano Township ...	65	68	133	14.5
Ebute Metta ...	454	447	901	43.4
Lagos	1,685	1,644	3,329	23.8
Port Harcourt ...	104	125	229	11.8
 Totals ...	 2,453	 2,442	 4,895	 23.7

Note.—The birth-rate for England and Wales in 1936 was 14.8, that for the Union of South Africa (European) 24.5 in 1935.

36. The marked discrepancy in the figure for, say Port Harcourt, with a rate of 11.8 for 1936 and that of 43.4 for Ebute Metta cannot be accounted for altogether by the differences in the age-sex constitution of the population. A more likely solution is afforded by the fact that Ebute Metta with its suburb of Yaba is growing rapidly and that its estimated population, as based on the 1921-1931 census figures, is far smaller than its actual population. In addition, it is not improbable that a number of births registered in the Ebute Metta district actually occur in villages situated in the surrounding bush whose inhabitants have learnt to appreciate the value of a birth certificate—obtainable after registration—in connexion with educational and vocational requirements.

37. The ratio of males to females born during 1936 was 100.5 to 100.

(4) DEATHS.

38. The numbers of deaths registered during 1936 showed an increase of only two on the figure of 3,039 recorded in 1935. The combined (crude) death-rates for 1935 and 1936 were 15.0 and 14.7 per thousand living persons respectively. The ratio of male and female deaths for 1936 was 132 to 100.

39. The very much smaller differences in death-rates as compared with birth-rates in the five registration districts, seems to support the thesis that the completeness of birth registration depends to some extent upon the amount of time the local Health Authorities can spend in suasion.

40. Death registration, is of course, a preliminary to burial; consequently it is likely to be much less dependent upon the factors influencing the registration of births. It will be noted that in Table 4 Port Harcourt enjoyed the lowest death-rate in 1936 with a ratio of 10, as compared with one of 22.2 for Ebute Metta. These rates are, of course, crude and uncorrected and are likely to approach much more closely to one another when calculated for the year 1941, when the next census is due to be taken.

Although a rate of 20 or so per thousand is high by English standards, it is not unduly high in West Africa where the hazards are so many, the birth-rate relatively high and the loss of infant life from ignorance, neglect and preventable disease, e.g., malaria, considerable.

41. If reliance can be placed on the accuracy of the figures available in the past years, it is reasonable to deduce that the average duration of life for the inhabitants of Lagos, for example, has been considerably lengthened during the past thirty-six years, the death-rate for 1900 being given as 41.4 per thousand living persons.

TABLE 4.

1935.

Town.	Deaths.			Death-rate per 1,000.
	Male.	Female.	Total.	
Calabar	222	136	358	20.8
Kano Township	61	39	100	11.2
Ebute Metta	229	203	432	21.3
Lagos	1,093	839	1,932	14.1
Port Harcourt	133	84	217	11.7
Totals and combined rates ...		1,738	1,301	15.0

Note.—The crude death-rate for England and Wales in 1936 amounted to 12.1, that for the Union of South Africa in 1935 was 10.6 (European only).

1936.

Town.	Deaths.			Death-rate per 1,000.
	Male.	Female.	Total.	
Calabar	205	133	338	19.5
Kano Township	77	39	116	12.6
Ebute Metta	244	217	461	22.2
Lagos	1,089	843	1,932	13.8
Port Harcourt	115	79	194	10.0
Totals and combined rates ..	1,730	1,311	3,041	14.7

(5) INFANT MORTALITY.

42. Of the number of deaths registered in 1936 some 683 were recorded in respect of infants as compared with 580 infant deaths for the previous year. The ratio of infant deaths per thousand live births rose from 130 in 1935 to 140 in 1936.

43. An analysis of the causes of deaths in infants in the Lagos registration district, where certification is probably more thorough than that in other places where fewer qualified medical practitioners and laboratory facilities are available, records the fact that diseases of the respiratory system come first in importance, forming 304 per thousand deaths from all causes. Next comes that rather vague group of conditions met with in early life including congenital debility, prematurity, marasmus, asthenia, etc., which accounts for 283 per thousand deaths in infants from all causes. Convulsions were given as the cause of death in 16 per thousand infant deaths, whilst malaria was certified in 6 per thousand. It is not improbable that a definite proportion of the deaths from convulsions are really attributable to malaria.

(6) STILL-BIRTHS.

44. The larger number of still-births which terminate pregnancy in Nigeria never come to the knowledge of the Registrars of Vital Statistics. No still-births were recorded at Kano and only one and two were noted at Calabar and Port Harcourt respectively. There is no doubt whatsoever that these figures do not represent the actual state of affairs. In Lagos where the community is more familiar with the custom of reporting still-births, some 110 were recorded as compared with 3,329 live births—a ratio of 33 per thousand live births.

(7) MATERNAL MORTALITY.

45. Forty-nine deaths of women in child-birth were recorded during the year, giving a rate of just over 10 per thousand live births. The rate for Lagos attained to the comparatively low figure of 7.2 per thousand live births. In view of the relatively small proportion of women who attend ante-natal clinics, of the fact that unskilled interference by unqualified handy-women is the rule rather than the exception, and of the overcrowding and unhygienic conditions still met with in many parts of Lagos, it is surprising that the loss of life in women at child-birth is not much higher. It might well be argued that a number of deaths from puerperal fever, accidents at parturition and during the puerperium were, in fact, attributed to other conditions. Against this, however, the maternal mortality rate at Massey Street Maternity Hospital and Dispensary where 778 women were delivered in

1936—some having been admitted on account of difficulties experienced at previous pregnancies, or because of other complications—amounted to 7.7 per thousand births.

46. It is desirable to emphasise the fact that a large number of preventable deaths falling into this category continue to occur all over Nigeria and that no stone should be left unturned until this loss of life has been reduced to the very minimum.

(8) MORTALITY ACCORDING TO SEX.

47. In spite of the fact that the proportion of male and female births registered was almost identical, male deaths greatly exceeded those in females. The actual numbers for the year under review were 1,730 males to 1,311 females, a ratio of 132 to 100. Immigration of male workers from French territory and for mine, plantation, Public Works and Railway activities, no doubt accounts in part for this discrepancy.

(9) MORTALITY ACCORDING TO AGE.

48. As might have been expected, the greatest loss of life occurred in children under one year of age, 22 per thousand deaths at all ages dying within twenty-four hours of birth and 203 between twenty-four hours and one year old.

The rate fell to 133 for the period of one to five years, to sixty-four from five to fifteen years and sixty-eight from fifteen to twenty-five years. Thence the rate rose to a peak of 215 for the twenty year period of twenty-five to forty-five, when the hazards of occupation and child-bearing are possibly greatest. The rate for persons of forty-five to sixty-five years of age and from sixty-five years upward was 134 and 161 per thousand deaths at all ages respectively.

49. It is interesting to note that the death-rate in females was higher than that in males up to the age of fifteen and from sixty-five years and upwards, but was considerably lower than that in males in the age groups from twenty-five to sixty-five. The high maternal mortality associated with child-bearing apparently had less influence on the death-rate at the period twenty-five to sixty-five than the greater exposure to disease and accident amongst males in the same age group.

(10) CERTIFICATION OF DEATHS.

50. Of the 3,041 deaths recorded during the year in the five registration areas dealt with in this report, 2,240 or 733 per thousand were registered on medical certificate or after a Coroner's inquest, usually involving a complete autopsy. Certification varied in respect of its completeness in the different areas, being dependent to a large extent on the medical and pathological facilities available. As might be expected, Lagos and Ebute Metta held the best record in 1936, only 182 and 187 per thousand respectively of the deaths not being certified. The corresponding figures for Port Harcourt, Kano and Calabar were 397, 457 and 689 per thousand.

51. In view of the importance from the point of view of a public health audit of ascertaining the actual cause of death, it is to be hoped that every effort will be made to bring about a higher standard of certification in future years.

(11) CAUSES OF DEATH.

52. It should be borne in mind in considering the relative importance in the Bill of Mortality of the various causes of death, that the actual causes were not certified in rather more than a quarter of the deaths registered.

Note.—The maternal mortality rate per thousand live births in England and Wales in 1935 was 4.1, that for the Union of South Africa (European) being 4.7.

53. An analysis of the causes shows that diseases of the respiratory system, other than of tubercular origin, head the list with a ratio of 213 per thousand deaths. Next in importance comes the group of diseases including diarrhoea, enteritis, dysentery, etc., with a ratio of 134 per thousand. Some 91 per thousand deaths are attributed to that rather vague condition, senile decay. Congenital debility, premature birth, birth injury, umbilical sepsis, etc., formed a group responsible for 77 per thousand deaths. Diseases of the heart and circulatory system provided 61 per thousand deaths registered.

TABLE 5.

No. in International List,	Name of Disease.	No. of deaths registered.	Rates per 1,000 total deaths.
1	Typhoid	2	...
6	Smallpox	7	...
7	Measles	3	...
9	Whooping Cough	17	...
13 (a), (b) & (c)	Dysentery	90	30
22	Tetanus	35	...
23	Pulmonary Tuberculosis	157	52
25-32 (c)	Other forms of Tuberculosis	65	...
33	Leprosy	4	...
34, 34 (a), 35, 35 (2)	Syphilis, Congenital Syphilis	27	...
36 (a), (b), & (c)	Gonorrhœa, Phagedænic Ulcer, Septicæmia, Pyæmia and Gas Gangrene	29	...
38	Malaria	160	52
39	Yaws	1	...
40, 42	Ankylostomiasis, Ascariasis	17	...
45-55 (b)	Cancer, Sarcoma	38	...
	Other Tumours	7	...
56	Acute Rheumatism	10	...
57, 1 & 2	Chronic Rheumatism and Rheumatoid Arthritis	23	...
59	Diabetes	6	...
71 (a), (b) 2, 72 (a)	Pernicious Anaemia, Anaemia, Leukaemia, Lymphadenoma	17	...
79	Meningitis, non-tubercular and non-specific	6	...
82 (a) 1	Cerebral Haemorrhage	31	...
80-85	Hemiplegia, other Paralysis, general Paralysis, Epilepsy	57	...
86	Convulsions	140	...
90-98	Diseases of Heart and Circulatory System	186	61
106 (a), (b) & (c)	Bronchitis, Broncho-pneumonia	154	213
107-109	Pneumonia, Lobar Pneumonia	449	
110-112	Pleurisy, Empyema, Asthma, etc.	46	...
119-127 (a)	Diarrhoea, Enteritis, Colitis, etc.	319	105
130-137 (a)	Acute and Chronic, Nephritis, etc.	119	...
141-150	Placenta Prævia, Eclampsia Puerperal Fever, etc.	49	...
151-153	Abscess, Furunculosis, Ulcer, etc.	24	...
157 (a) 2	Congenital Abnormality	5	...
158-159	Congenital Debility, Premature Birth, etc.	209	77
160	Birth Injury	16	
161 (c)	Umbilical Sepsis	9	...
162 (b)	Senile Decay	276	91
178	Poisoning	8	...
194	Other Injuries	58	...
199-200 (c)	Other defined or ill-defined and unknown diseases	165	...
	Total	3,041	...

Note.—The percentage of total deaths the cause of which was medically certified in the Union of South Africa for 1935 (European only) amounted to 930 per thousand.

54. Malaria came next with a ratio of 52 per thousand, closely followed by pulmonary tuberculosis with an almost identical ratio. Deaths from all forms of tuberculosis accounted for 73 per thousand of the total number of deaths.

55. Further particulars are to be seen in Table 5 page 13.

(12) MORTALITY IN NON-NATIVES.

56. A total of thirty-seven deaths in non-natives were registered during the year out of an estimated population of 6,823. Of these, seventeen took place in the Northern Provinces, eleven in Lagos and nine in the Southern Provinces—including the Cameroons. These figures compare with a total of thirty and twenty-eight deaths in the Colony, Protectorate and Mandated Territory for 1934 and 1935 respectively, the estimated non-native population for these two years being 5,021 and 5,246.

57. Owing to the absence of reliable data relating to the non-official section of the population, it is only possible to estimate the death-rate for official members of the non-native community. Based on an average resident population of 1,560, the official (non-native) death-rate for 1936 amounted to 7.1 per thousand living persons. This rate compares with one of 4.8 per thousand in the previous year. Deaths of European officials at sea and in the United Kingdom are, of course, not included in this figure.

58. Ten of the thirty-seven deaths were in females, the ages varying from three days in a baby born to citizens of the United States, death being due to congenital heart disease, to forty-three years in the case of a British Missionary. Amongst males the age limits lay between a premature baby dying within eight hours of birth and a British miner of fifty-five.

59. The nationality of the deceased included 26 British, 3 German, 2 United States, 2 Syrian and 1 each of Dutch, Indian, Italian and Swiss nationality.

60. It is interesting to note that the occupations were as follows:—missionaries, 7; infants, 5; merchants, 4; Engineers and Inspector of Works, 3; ships stewards, 3; Assistant District Officers, 2; housewives, 2; miners, 2; Assistant Commissioner of Police, Regimental Bandmaster, clerk, Medical Officer, Sanitary Superintendent, Superintendent of Prisons, planter, Storekeeper and Train-Guard 1 each.

61. The causes of death were distributed in the following manner:—tubercular broncho-pneumonia, 1; malaria and blackwater fever, 9; yellow fever, 3; diabetes, 1; meningitis, 1; cerebral abscess, 2; cerebral thrombosis, 1; convulsions, 1; pleurisy, 1; acute haemorrhagic pancreatitis, 1; appendicitis, 2; intestinal toxæmia, 1; Bright's disease, 1; urethral stricture, 1; puerperal fever, 1; exhaustion following child birth, 1; congenital heart disease, 1; congenital debility, 1; suicide, 2; drowning, 1; motor and train accident, 3; and unknown, 1. It is significant that nearly one-third of the deaths amongst non-natives were due to malaria, blackwater fever and yellow fever-maladies essentially preventable and contracted from living close to reservoirs of the plasmodia and virus.

(13) MORBIDITY IN NON-NATIVES.

62. During 1936 invalidings of European officials numbered 100, an increase of five over the figure for the previous year. The causes of invaliding are given in tabular form below and attention is invited to the number of persons suffering from malaria and other tropical disease and from neurasthenia and allied nervous diseases.

TABLE 6.—MORBIDITY IN NON-NATIVES (OFFICIALS).

Number in International List.	Name of Disease.	No. of Persons Invalided.	No. of Deaths.
1	Typhoid Fever ...	1	—
13 (c)	Dysentery ...	2	—
27	Disease of Joint ...	1	—
34 (b)	Secondary Syphilis ...	1	—
37	Yellow Fever ...	—	2
38	Malaria ...	5	—
42	Filarasis (<i>L. loa</i>) ...	1	—
44 : 6	Blackwater Fever ...	2	3
45	Carcinoma Jaw ...	1	—
59	Diabetes Mellitus ...	1	—
71 (b) : 2	Anæmia ...	4	—
74	Hæmoglobinuria ...	1	—
82 (b) : 2	Cerebral Thrombosis ...	1	1
82 (c) : 2	Paralysis ...	1	—
84 (a)	Dementia Præcox ...	1	—
84 (b)	Psychasthenia ...	1	—
87	Other Diseases of the Nervous System ...	1	—
87 (b)	Neuritis ...	2	—
87 (c)	Neurasthenia ...	17	—
88	Optic Neuritis ...	3	—
89 (a)	Otitis ...	2	—
92 : 2	Aortic Incompetence ...	1	—
98 (b)	Myocarditis ...	3	—
100 : 1	Hæmorrhoids ...	1	—
112	Asthma ...	2	—
115 : 1	Gingivitis ...	1	—
117 (b)	Duodenal Ulcer ...	5	—
118 : 1	Gastritis ...	1	—
118 : 2	Dyspepsia ...	1	—
119 & 120 (a) : 1	Colitis ...	1	—
119 & 120 (a) : 2	Diarrhœa ...	2	—
121	Appendicitis ...	5	1
123 : 1	Intestinal Stasis ...	1	—
123 : 3	Fistula in-ano ...	2	—
128	Disease of the Pancreas ...	—	1
134 (a)	Renal Calculus with Cystitis ...	1	—
151	Boils ...	3	—
152 : 2	Abscess ...	1	—
153	Ulcer ...	1	—
156 (b)	Lumbago ...	2	—
171	Suicide ...	—	1
191	Insomnia ...	1	—
194 : 2	Eye Strain ...	1	—
195	Fracture ...	4	2
200 : 2	Asthenia ...	11	—
Total ...		100	11

63. Table 7 contains further details of sick and invaliding rates and allied information for the past three years.

TABLE 7.—TABLE SHOWING SICK, INVALIDING AND DEATH-RATE OF EUROPEAN OFFICIALS FOR 1934, 1935 AND 1936.

		1934.	1935.	1936.
Total number of officials resident ...	...	2,107	2,053	2,164
Average number resident ...	...	1,508	1,473	1,560
Total number of days on sick list ...	...	10,039	9,204	8,991
Average daily number on sick list ...	...	27.5	25.2	24.6
Percentage of sick to average number resident ...	...	1.8	1.7	1.5
Average number of days on sick list to each patient ...	...	10.07	10.3	9.9
Average sick time to each resident ...	...	4.7	4.4	4.1
Total number invalidated ...	...	100	95	100
Percentage of invalidings to total resident ...	...	4.7	4.6	4.6
Percentage of invalidings to average number resident ...	...	6.6	6.4	6.4
Total deaths ...	...	8	7	11
Percentage of deaths to total resident ...	...	.37	.34	.50
Percentage of deaths to average number of residents ...	...	.53	.47	.70

64. It will be seen from Table 8 that the morbidity figures in the case of non-official non-natives showed a great improvement over those for the previous year, only forty-one invalidings taking place as compared with ninety-two for 1935.

TABLE 8.—MORBIDITY IN NON-NATIVES (NON-OFFICIALS).

No. in International List.	Name of Disease.	No. of Invalidings.	No. of Deaths.
2	Paratyphoid	1	—
13 (b)	Bacillary Dysentery	1	—
23	Pulmonary Tuberculosis	1	1
34	Cerebral Syphilis	1	—
35 : 2	Gonorrhœa	1	—
37	Yellow Fever	1	1
38	Malaria	5	6
44 : 6	Blackwater Fever	1	—
59	Diabetes	—	1
71 (b) : 2	Anæmia	1	—
79	Meningitis	—	1
82 (b) : 2	Cerebral Thrombosis	—	1
82 (c) : 2	Facial Paralysis	1	—
87 (c)	Neurasthenia	9	—
88	Iritis	1	—
110 : 1	Empyema	1	—
110 : 2	Pleurisy	1	1
115 : 3	Tonsillitis	—	1
117 (b)	Duodenal Ulcer	2	—
118 : 2	Dyspepsia	1	—
119 & 120 (a) : 2	Gastritis & Intestinal Toxaemia	1	1
121	Appendicitis	2	1
123 : 3	Fistula in-Ano	1	—
125 : 2	Hepatitis	2	—
131	Chronic Nephritis	—	1
136 (a)	Stricture of Urethra	—	1
145 (a)	Puerperal Septicæmia	—	1
149	Childbirth (Mother)	—	1
151	Boils	2	—
157 (c)	Congenital Heart Disease	—	1
158	Congenital Debility	1	1
159	Immaturity	—	1
171	Attempted Suicide & Suicide	1	1
186	Injuries from Car accident	—	1
195	Drowning	—	1
195	Fracture of Pelvis	2	—
200 : 3	Unknown	—	1

(14) MORBIDITY IN NATIVE OFFICIALS.

65. Eighty-one African officials were invalidated and twenty-four died during 1936. This compares with a considerably lower figure of thirty-nine invalidings but with a higher figure of thirty-one deaths in the previous year.

It is noteworthy that as many as twenty-three African officials were invalidated on account of optic atrophy as compared with one from this cause in 1935. In nine of the officials invalidated the cause was given as arterio-sclerosis, whilst seven each were invalidated on account of pulmonary tuberculosis and myocarditis. Full details are given in Table 9 below.

TABLE 9.—MORBIDITY IN AFRICAN OFFICIALS.

No. in International List.	Name of disease.		No. of persons invalidated.	No. of deaths.
23	Pulmonary tuberculosis	...	7	3✓
34	Syphilis	...	3	1
38	Cerebral malaria	...	—	2
39	Trypanosomiasis	...	1	—
45	Cancer of the mouth	...	1	—
57 : 1	Chronic rheumatism	...	1	—
57 : 2	Arthritis	...	2	—
80	Locomotor ataxia	...	1	—
81 : 4	Ataxia paraplegia	...	1	—
82a : 1	Cerebral haemorrhage	...	—	1
82b : 3	Cerebral softening	...	1	—
82c : 1	Hemiplegia	...	1	—
82c : 2	Paraplegia	...	—	1
84b	Dementia	...	2	—
85	Epilepsy	...	1	—
87	Other forms of the nervous system	...	1	—
87c	Neurasthenia	...	4	—
88	Optic atrophy	...	23✓	—
89a	Acute otitis media	...	—	1
92 : 5	Chronic eudocarditis	...	—	1
93c	Myocarditis	...	7	—
95a	Auricular fibrillation	...	1	—
95h : 2	Heart disease	...	3	1
97 : 3	Arterio-sclerosis	...	9	—
106b	Chronic bronchitis	...	1	—
106c	Bronchitis	...	1	—
108	Lobar pneumonia	...	3	3✓
109	Chronic pneumonia	...	—	1
112	Asthma	...	2	—
119 & 120 (a) : 2	Diarrhoea	...	—	2
122b	Intestinal obstruction	...	—	2
125 : 2	Hepatitis	...	—	1
132	Nephritis	...	2	3✓
135a	Chronic cystitis	...	1	—
152 : 1	Cellulitis	...	1	1
			81	24

(15) MORBIDITY IN NIGERIA REGIMENT, R.W.A.F.F. (AFRICANS).

66. Fifty members of the Nigeria Regiment were invalidated and twenty-one died during 1936 as compared with forty invalidings and twenty-two deaths respectively in 1935.

Further particulars are included in Table 10.

TABLE 10.—MORBIDITY IN NIGERIA REGIMENT.

Soldiers—Nigeria Regiment—R.W.A.F.F.

Average daily strength	...	...	3,061
Total number on sick list	...	...	7,883
Total number of days on sick list	...	48,494	
Average daily sick	...	...	21.6
Total number of deaths	...	...	21
Death-rate per thousand	...	...	6.8
Number invalidated during the year	...	50	

(16) MORBIDITY IN NIGERIA POLICE (AFRICANS).

67. The number of African Police invalidated during 1936 was twenty-nine, a fall of four below that of the previous year. Deaths in the force amounted to thirty-four, one less than in 1935.

Table 11 gives further particulars.

TABLE 11.—MORBIDITY IN NIGERIA POLICE.

Average daily strength	...	...	3,621.4
Total number on sick list	...	...	2,723
Total number of days on sick list	...	...	19,323
Average daily sick	...	...	7.5
Total number of deaths	...	...	34
Death-rate per thousand	...	...	9.3
Total number invalidated	...	...	29

III.—HYGIENE AND SANITATION.**A.—GENERAL REVIEW OF WORK DONE AND PROGRESS MADE.****I.—PREVENTIVE MEASURES.***(i) Mosquito and Insect-Borne Diseases.**(a) Malaria.*

68. Malaria continues to be one of the major public health problems met with in Nigeria, breeding places for both *Anopheles gambiae* and *A. funestus* being commonly found throughout Nigeria.

69. A start was made of utilising the services of a Sanitary Superintendent (who had received a thorough training under malarial experts attached to the Rockefeller Foundation operating in West Africa) to organise anti-mosquito brigades and to train the African personnel in some of the more important stations where infestation with anopheline mosquitoes was particularly prevalent.

70. Reclamation of low-lying areas, including those at the Apapa Airport at Lagos and at Ikoyi and various places on Lagos Island, continued to be carried out on a large scale.

71. The Swamp Reclamation Board, appointed to advise Government with regard to the control of the Lagos swamps, completed its deliberations during the year and has submitted recommendations for filling and drainage of large tracts of marsh land which were of potentially high value for commercial development or which were situated in such close proximity to residential areas and the town and its suburbs as to constitute a definite menace to health. The programme, which entails detailed contour surveys, will extend over a period of several decades. Meanwhile, the reclamation of the swamp for purposes of constructing the Apapa Airport was continued during 1936 and will be further extended in 1937. Reclamation of the Idumagbo Lagoon in Lagos Town and of portions of the adjacent European residential quarters in Ikoyi made good progress during the year and was accompanied, in the latter instance, by tree planting utilising for the purpose:—*Cassia siamea*, *Casuarina equisetifolia*, *Eucalyptus alba*, *Peltophorum africanum*, and *Pithecellobium*. Apart from actual filling and afforestation, a considerable amount of drainage was effected, chiefly of a temporary nature, though in some cases semi-permanent drains were constructed with waste tiling.

72. At Jos, where much breeding of anophelines takes place at the sides of streams, in drains and in seepage areas, an effort was made to reduce pooling and washouts by stepping drains. The treatment of areas incapable of being filled or drained with various larvicides continued as in previous years. In Lagos, for example, the Medical Officer of Health reports that two and a half tons of Paris green and 12,256 gallons of oil were expended.

73. The importance, as a preventive measure for both malaria and yellow fever, of segregation of so-called non-immunes or members of the white races from the heavily infected indigenous population in properly constituted European reservations with building-free zones of a depth of at least 440 yards was again stressed.

74. Distribution of quinine at little over cost price through the Post Offices to members of the general public operated smoothly during the year and was a popular service.

(b) *Yellow Fever.*

75. The history of yellow fever in the non-native community during the past three years is worth recording owing to the lesson it teaches. In November, 1934, the disease appeared in the Kano Province of Northern Nigeria; an Administrative Officer who had been touring in the Gaya District was admitted to Kano Hospital suffering from yellow fever as confirmed by the mouse-protection test. A week later, a French merchant who had been resident at Ringim near Kano died of the disease in Kano Hospital, the diagnosis being confirmed on post mortem examination.

76. At the beginning of December an Engineer in the Public Works Department, who had been living in Kano residential area (which then harboured a large number of Africans) fell sick, the diagnosis being established by mouse-protection test. Immediately prior to this, two European ladies, one the wife of the officer referred to in the preceding paragraph, died of a disease which, although not so diagnosed at the time, was later believed to have been yellow fever.

77. In 1935, a case of yellow fever (confirmed by mouse-protection test) was reported in a missionary at Onitsha in Southern Nigeria.

78. In September, 1936, a severe case, happily ending in recovery, occurred in a missionary resident near Aba in Southern Nigeria. A fellow missionary who had been ill some weeks earlier in the same compound gave a positive serological test. About the same time an Administrative Officer died at Yasikera in the Kaiama Division of the Ilorin Province, Northern Nigeria, near the frontier of Dahomey. The diagnosis was made by a French Government Medical Officer.

79. In November, a Medical Officer who had been infected with the disease in the Bornu Province of Northern Nigeria died after admission to Jos Hospital. Infection may have occurred in Maiduguri itself for, at that period, African clerks and their families lived within a few yards of the European houses.

80. At the end of December an Irish missionary died at Calabar in Southern Nigeria after touring in the Uyo Division, the post mortem confirming the clinical diagnosis of yellow fever. He had stayed in close contact with the indigenous population. During November, a case of yellow fever, later confirmed, in an African adult male was reported from Calabar.

81. Earlier in the year (February) five deaths in adult Africans following an illness lasting three days accompanied by fever, jaundice and prostration were reported from Boria in the Kaiama Division already referred to. The deceased were not examined in life, but it was possible to exclude relapsing fever by the examination of similar but milder cases that occurred about the same period. It would be unwise to infer any more from the evidence available than that the disease may have been yellow fever. It will be recalled that a fatal case in a European in the Kaiama Division was notified later in the year.

82. In July, two deaths in Africans (one an adult and the other a child) amongst four cases of an illness associated with fever and jaundice were encountered at Jigawa in the Kontagora Division of the

Niger Province of Northern Nigeria. A tentative diagnosis of spirochaetal jaundice was made in these cases, but no confirmation was possible and the condition may have been due to yellow fever.

83. In August, a male African adult died of suspected yellow fever at Kano. Pathological examination suggested acute yellow atrophy as the cause. In the same month an African woman died at Zaria in Northern Nigeria, the Pathologist being unable to exclude yellow fever as a possible diagnosis.

84. In September, a male African adult recovered from an illness somewhat resembling yellow fever at Wusasa near Zaria and his serum gave a positive result with mice. This case was not actually reported as one of yellow fever because of the doubt in the mind of the medical superintendent of the mission hospital to which the man had been admitted.

85. Bearing in mind the high indices for mouse-protection tests carried out in Nigeria by the Rockefeller Foundation—attaining to a figure of nearly 80% and being 8% in children under nine years of age in Lagos itself—and the scattered nature of the infections described in the foregoing paragraphs, it will be agreed that yellow fever constitutes a definite public health problem in spite of the apparent paucity of recognised cases. Apart from the usual anti-mosquito measures directed against the principal vector of the virus, *Aedes aegypti*, mention might be made of the efforts to control the breeding of *Mansonioides africana* in the pistia covered pools and borrow pits in Bauchi, Kano, Katsina, Zaria and other large walled cities. Over 90% of the mosquito infestation of the houses in Kano during certain seasons was found to be due to mosquitoes of the mansonioides group.

86. Domiciliary visits still constitute one of the foremost lines of defence against yellow fever and, in Lagos alone, the Medical Officer of Health reported that over half a million domestic collections of water were inspected for mosquito breeding in the course of 170,141 routine sanitary inspections of compounds, a larval index of 1.7 being obtained.

87. It is of interest to note that mosquito breeding was found in several septic tanks, in many so-called soakaway pits and in the reservoirs containing roof-washings in connexion with water tanks at bungalows. Legislation is pending which will bring septic tanks under the control of the municipal and local authorities who will organise periodical inspections to obviate breeding and other nuisance. Soak-away pits—everyone of which was found breeding at Ijebu-Ode in Southern Nigeria, to quote but one station—are recognised to be a real danger and the system is being discontinued as rapidly as funds and materials for alternative methods of disposal of waste water permit. Plans are in course of preparation to alter the design of the apparatus for rejecting roof-washings in such a way as to obviate potential mosquito breeding.

88. A campaign was inaugurated against plants, shrubs and trees proved to provide breeding sites for the yellow fever carrier. In Ibadan, the Medical Officer of Health reported that the following water-holding plants, etc., in residences in that township were removed:—banana, 11,730; cocoyam, 818; hemp, 1,060; pawpaw, 5,787 and pine-apple, 10,520. Holes in over a thousand trees in the same town giving rise to mosquito breeding were also filled in, fifty-five trees with five or more breeding places in each being felled. Reference has already been made under "Malaria" to the propaganda in favour of segregation of Europeans from potential sources of yellow fever infection.

89. Whenever opportunity arose, non-natives were advised to undergo protective inoculation against yellow fever whilst on leave in Europe.

90. In order to implement the agreement reached at the International Sanitary Convention for Aerial Navigation, 1933, regulations were brought into force during 1936 to control the arrival and departure of aircraft, crew and passengers. Work was carried out in connexion with the landing grounds for aircraft; and, early in 1937 it was found possible to declare Apapa (Lagos) Airport as being anti-amaryl within the meaning of the Convention, Kano and Maiduguri having been so declared previously. Satisfactory permanent and temporary accommodation is now available at Apapa and Kano for intending passengers by air whom it is necessary to keep under observation for the prescribed period.

91. In instances where cases or suspected cases of yellow fever were diagnosed the usual precautions were adopted, including fumigation of premises, observation of contacts, weekly "dry pot" parades in military lines, police barracks, intensive hunt for and destruction of sources of mosquito breeding, etc.

(c) *Filariasis.*

92. Filariasis is not an important cause of ill-health in Nigeria and no special preventive measures were instituted. Infection with *L. loa* is more commonly the cause of persons coming under medical care, actual infections with *W. bancrofti* being comparatively rare.

(d) *Dengue.*

93. It may be of interest to note that outbreaks resembling dengue in both European and African members of the community were reported from several northern towns in 1936. The cases also bore a resemblance to rubella and to glandular fever. Apart from general measures against insect vectors no specific preventive measures were taken.

(e) *Trypanosomiasis.*

94. The sleeping sickness problem in Nigeria is of such magnitude as to justify the subject being dealt with in a separate report which is appended at the end of this Report. Briefly, both the field survey work with five teams, increased to six by the end of the year, and the research work at Gadau continued as before. The survey teams were responsible for examining 417,495 persons in the Northern Provinces of whom 47,550 or nearly 11.5 *per centum* were found to be infected. Of this number, 40,897 had completed their course of treatment by the end of the year. In addition, 10,450 cases of the disease were diagnosed and treated at field dispensaries and 4,021 at general hospitals, making a grand total of 62,021 cases treated.

95. The system of control of mine labour inaugurated in 1935 worked satisfactorily and the infection rate of the villages from which this labour is drawn has fallen. Protective clearing was carried out by communal labour in the Katsina and Sokoto Emirates and, with Native Administration staff, in the Zaria Emirate.

96. Two important milestones along the road towards the effectual control of sleeping sickness in this country were passed during the year. One consisted of "an Ordinance to make Provision for Measures for Preventing the Spread of Sleeping Sickness and for the Compulsory Treatment of those Persons Infected with Sleeping Sickness" which comes into force from the beginning of 1937. The second measure which is likely to exert a considerable influence on the incidence of the disease related to a scheme for transferring communities from highly infected areas, which could not be rendered and maintained free from tsetse fly economically, to fly-free areas where they will be assisted to build model villages on strictly hygienic lines and to cultivate

food and cotton farms. This proposal involves an additional expenditure of about £150,000 spread over a period of five years at least and, possibly, for a longer period. The scheme will receive considerable financial support from the Colonial Development Board.

(f) *Typhus.*

97. By notice in the Gazette dated the 10th of September, typhus was added to the list of notifiable infectious diseases to meet the requirements of the International Sanitary Convention for Aerial Navigation, 1933, and the International Sanitary Convention, 1926. Up to date, only one case suspected to be due to typhus has been reported in Nigeria. It is proposed to obtain the requisite suspensions of *B. proteus* for diagnostic purposes.

(ii) *Epidemic Diseases.*

(a) *Plague.*

98. Human and rodent plague remained absent from Nigeria during the year. Some 83,387 rats were examined among 112,549 caught in Lagos, Port Harcourt and certain inland places. General preventive measures against the disease aimed at "building-out" rodents from stores and premises, destroying their harbourages by systematic collection and, in the better organised centres of population, incineration of refuse, and by the protection of food supplies.

(b) *Cholera.*

99. As far as records go, this country has never suffered from a visitation of cholera.

(c) *Smallpox.*

100. Smallpox afflicted the country, chiefly Northern Nigeria, in a severe form during 1936. Apart from the regrettable loss of life, ulceration of the cornea with impaired vision or actual blindness is a common sequela of this disease. The actual incidence is given in the following table:—

	No. of cases		No. of deaths		Case mortality rate per 100 cases	
	1935.	1936.	1935.	1936.	1935.	1936.
Colony ...	26	17	1	2	3.4%	11.8%
Southern Nigeria ...	411	514	57	53	13.9%	10.3%
Northern Nigeria ...	5,061	4,352	1,345	556	26.6%	12.8%
Totals and rates ...	5,498	4,883	1,403	611	25.5%	12.5%

101. Vaccination was carried out by Government and Native Administration Assistant Public Vaccinators at all the important centres. In addition, campaigns under a Sanitary Superintendent of the Health Service of the Department were instituted in the Northern Provinces and in the Oyo Province of Southern Nigeria in close consultation with the Political Administration and Native Authorities. Towards the end of the year and at the suggestion of the Chief Commissioner of the Northern Provinces, arrangements were made, in regions where the Native Authorities favoured the innovation, to attach vaccinators to sleeping sickness teams so that protection against smallpox could be offered to all those attending for examination by the teams.

102. Vaccine lymph was obtained from the Lister Institute at Hendon and from locally manufactured sources at the Veterinary Headquarters at Vom on the Jos Plateau of Northern Nigeria.

103. Details regarding the number of vaccinations performed are given in Table below for the years 1935 and 1936.

TABLE.

	Southern Provinces.		Northern Provinces		Colony.	
	1935.	1936.	1935.	1936.	1935.	1936.
No. performed ...	508,870	436,291	247,897	754,331	...	41,585
No. inspected for results ...	393,784	301,904	Figures not available.	Figures not available.	...	23,947
No. successful ...	242,099	236,805			...	19,552
No. failed ...	61,685	65,099			...	4,395
No. unknown ...	205,086	134,387			...	17,638
Percentage successful ...	79.7	78.4			...	81.2
No. of tubes of Lymph from Lister Institute ...	...	12,276	16,362	...	...	4,857
No. of tubes of Lymph from Vom* ...	...	5,266	1,750	...	...	3,657

* 1,711 tubes rejected owing to contamination with haemolytic streptococcus.

104. There is little doubt that the opposition to vaccination is fast disappearing. Little or no difficulty is now experienced in persuading Native Authorities in Northern Nigeria to introduce compulsory vaccination of children (which already pertains for all persons in Southern Nigeria) and advantage is taken of this to offer protection to mothers and adults generally. In time, it is hoped that compulsory vaccination will be extended to all persons in the Northern part of the Protectorate which receives large numbers of immigrants from neighbouring territories.

Smallpox is responsible for such havoc and is so essentially preventable that it is particularly desirable that every possible effort should be made to bring about a satisfactory vaccinal condition in the community as a whole.

(d) *Enteric Fever.*

105. During 1936 a total of thirty-seven cases of enteric fever were notified with eight deaths, the incidence and case mortality being almost equally divided between Northern and Southern Nigeria. Europeans were encouraged to undergo preventive inoculation once every two years when on leave in Europe, but this is, so far, purely optional.

106. Preventive measures against the disease consisted in the improvement of water supplies, and of nightsoil and refuse disposal, and a campaign against flies—including extensive propaganda aimed at abolishing the unsatisfactory system of stabling of horses in individual compounds in European residential areas.

(f) *Dysentery.*

107. Dysentery is still an important cause of ill-health amongst all sections of the community. Preventive measures against the disease were on the lines of those described under the preceding section except as regards preventive inoculation.

108. The following summary of 4,206 specimens of stools examined at the Lagos Pathological Laboratory may be of interest:—

- E. histolytica found in 21.
- B. dysenteriae (Flexner) in 39.
- B. , (Sonne) in 3.
- B. , (Schmitz) in 2.

(g) *Cerebro-Spinal Fever.*

109. As in the previous year Southern Nigeria remained free from cerebro-spinal meningitis in 1936.

In Northern Nigeria, however, whereas only six cases with four deaths had been notified in 1935, the figures rose to forty-three cases and thirty-six deaths in the year under review; this increase proved to be the forerunner of a rather severe and widespread epidemic after the close of the year. Preventive measures took the form of propaganda directed towards better housing and ventilation and the prevention of overcrowding. Discussions took place during the year between the Health Authorities and managements of mines and plantations and these have already borne fruit in the case of the plantations.

110. To assist in bringing to the notice of large employers of labour their obligations regarding medical and health services for their labourers under the Regulations enacted in connexion with the Labour Ordinance, 1929, a circular memorandum was drawn up and distributed —see Appendix D.

(h) *Yaws.*

111. Yaws continued to hold pride of place amongst the conditions treated at hospitals and dispensaries and was responsible for much ill-health amongst the African population. In some areas, including mandated territory, special campaigns were directed against the disease from rural dispensaries. Early treatment of the condition itself, aseptic treatment of cuts and scratches, encouraging of cleanliness in person, clothes, house and surroundings combined with proper disposal of nightsoil and refuse and a general war on flies constituted the main lines of attack on the inroads of the disease.

(iii) *Other Diseases.*

(a) *Leprosy.*

112. It is interesting to note that medical opinion has undergone some revision in recent years regarding the methods to be employed in dealing with the leprosy problem. In the past, treatment has occupied the most prominent place. The tendency now is to regard the disease as a public health problem, to treat sufferers likely to benefit, and especially those with the infectious form of the disease, and to encourage those capable of spreading the condition to undergo voluntary segregation. Young persons are believed to suffer from a particularly severe and infectious form of the complaint, consequently every effort is made to separate babies and young children from their leper parents before the former become infected. The old system of incarcerating "burnt-out" or non-infectious cases in leper colonies—in order to obviate the discomfort experienced by the community in seeing such derelicts in streets and markets—is gradually being relinquished, although it is well-appreciated that this unfortunate class is in need of some form of charitable relief.

113. Nigeria enjoyed a visit from Dr. E. Muir, C.I.E., Medical Secretary of the British Empire Leprosy Relief Association, during 1936, and benefited considerably from his long and varied experience in the leper problem and from the re-orientation he gave to the subject. His report and more especially his ideas regarding provincial and, in Southern Nigeria, clan settlements are being given careful consideration.

(b) *Tuberculosis.*

114. Although there is no direct evidence of a rapid increase in the loss of life from tuberculosis in Nigeria—principally pulmonary in origin—there is little doubt in the minds of various persons who have investigated the subject that the disease constitutes a very real menace.

This is particularly the case owing to the fact that the type encountered is usually the acute, exudative or infantile variety with rapid dissemination and a fatal issue within a year or so.

115. In order that an effort might be made to stem the tide of this disease (which was responsible for over nine *per centum* of deaths from all causes in Lagos in 1936) it was added to the list of diseases, which are compulsorily notifiable and against which certain administrative measures can be taken.

116. Preventive measures against the disease included:—(1) the banning of “open” cases from the general wards of hospitals and their treatment in isolation quarters or on ward verandahs where such quarters did not exist; (2) persuading those who could not be hospitalised to occupy rooms to themselves and not share in the common bowl or drinking and eating utensils and to disinfect their sputa; (3) the examining of contacts where staff permitted; (4) the improving of housing and town planning; and, (5) propaganda work on dietaries aimed at protecting persons from invasion by Koch’s bacillus.

117. It is gratifying to note the increased attention paid by householders in many parts of Nigeria to the need for keeping windows open and for replacing the plain shutter with a louvred variety.

(c) *Pneumonia and other respiratory diseases.*

118. Diseases of the respiratory system with pulmonary tuberculosis accounted for a heavy loss of life during the year. In five areas where death registration is in force the ratio of such deaths per thousand deaths from all causes was 265. Measures calculated to counteract these infections are more or less similar to those already described under the heading of “Tuberculosis”.

(iv) *Helminthic Diseases.*

(a) *Ankylostomiasis.*

119. It is usual for Medical Officers to voice the opinion that hookworm infection is not uncommon in Nigeria, but that it is often not of great moment to the person infected. On the other hand, it is not unlikely that the presence of even comparatively small numbers of hookworm in the gut results in a certain amount of anaemia and loss of strength and of efficiency. The importance of a satisfactory type of latrine was stressed whenever opportunity arose and type plans were drawn up and circulated. On some plantations where the degree of infestation was high, it was stated that African employees would not use the latrines provided, even when these were maintained in good order by the managements. This difficulty is frequently experienced and can be countered by the statement that it is not unusual for the first “generation” of labourer to fail to use, the second to abuse or misuse, whilst the third makes proper use of facilities provided.

(b) *Ascariasis.*

120. Ascariasis is such a common infection that it is probable that over ninety *per centum* of Africans (in Southern Nigeria at any rate) acquire the disease at some time during their lives. Patients at the hospitals and dispensaries with this condition were more numerous than those suffering from all other forms of helminthic infestation grouped together. Steps taken to limit infection included educational propaganda directed towards an improvement in the disposal of refuse and nightsoil and in the protection of food from flies.

(c) *Tæniasis.*

121. Common in Northern Nigeria, where meat is often eaten in an undercooked condition and where infection of cattle is not infrequent owing to the primitive habits of the community, tæniasis is less of a problem in Southern Nigeria.

122. Preventive measures taken comprised propaganda aiming at the construction of fly-trapped 'salga' latrines in adequate numbers, the discouraging of promiscuous fouling and the inspection and destruction of badly infected carcasses. Sufferers from the disease who presented themselves at hospitals and dispensaries received the usual helminthic treatment.

(d) *Dracontiasis*.

123. Dracontiasis was the cause of a considerable number of persons attending hospitals and dispensaries in 1936. In point of numbers males were afflicted about nine times as frequently as females. On the other hand, there are fewer in-patient facilities for women than for men and there is still a greater disinclination on the part of women to attend for medical treatment, more especially if this is likely to result in admission to hospital. Purdah has little influence on this reluctance and it is more likely to result from maternal anxiety as to how her family and her home are to be cared for in her absence.

124. Preventive measures took the form of educational propaganda regarding water supplies and in the construction of large numbers of deep wells with concrete tops and linings to replace the muddy pools so frequently infected by persons suffering from guinea worm.

(e) *Schistosomiasis*.

125. As in the case of dracontiasis, the number of males attending hospitals and dispensaries with schistosomiasis greatly exceeded the number of females. The reason for this is probably the same as that given in the previous section. Small boys are possibly more prone to bathe in contaminated pools than small girls who would be more likely to wash with water obtained from the main source of supply for the town or village which might be a stream or a well or pool less liable to contamination from promiscuous fouling.

126. Infections with *Schistosoma haematobium* were very much more common than those due to *S. mansoni*, although there are some grounds for belief that a proportion of the cases diagnosed as dysentery are due to schistosome infection, and it will be recalled that bilharzial appendicitis is a well established entity in Nigeria (Lovett-Campbell & Rose, 1936).*

127. The main line of action against the disease in 1936 resolved itself into public health propaganda aiming at teaching the value of simple forms of protected 'salga' latrines and the danger of fouling, especially near pools and ponds. In Bida in Northern Nigeria where a large section of the population suffer from this complaint—so much so that it is regarded almost in the same light as a common cold in other countries—a certain amount of planting of *Balanites aegyptiaca* was carried out along the bed of a stream running through the town in the pools beside which the snail vector (*Planorbis pfeifferi*) is found. After a careful survey of the ground, however, it appeared that the siting of single protected 'salga' latrines at convenient places between the town and the stream was likely to prove of greater benefit. Drainage and filling of infested sources would, in most instances, prove impracticable economically.

(v) *Animal Diseases*.

128. Although the export of hides of cattle and skins of goats and sheep is one of the major industries of Nigeria, only one case of human anthrax came under notice in 1936. The Veterinary Authorities

* Lovett-Campbell (A. C.) & Rose (A. W.). Bilharzial Appendicitis in *Schistosoma haematobium* Infestations. A Preliminary Report.—Trans. Roy. Soc. Trop. Med. & Hyg., 1936. Nov. 28. Vol. 30, No. 3.

have, however, stated their belief that anthrax is endemic in the marsh land bordering some of the rivers in the Adamawa Province in Northern Nigeria. In order to secure legal support for any measures that may be deemed necessary by the Veterinary or Health Authorities in the event of an outbreak of anthrax in animals, it was decided to recommend that the disease should be added to the list of notifiable infectious diseases under the Public Health Ordinance. This amendment will be made in 1937.

129. From the point of view of their importance to humans, the group of conditions included in the term "taeniasis" is noteworthy. In this connexion it is somewhat surprising to note from the Report of the Medical Officer of Health, Lagos, that no cases of infestation with *Cysticercus bovis* or *C. cellulosae* were discovered among 16,232 cattle and 1,472 pigs slaughtered at the Municipal Slaughter House, Apapa, during the year under review. The Medical Officer of Health, Kano, reported similarly that no cases of cysticercal infection was seen in 30,376 cattle slaughtered in Kano in the same period.

130. Tuberculosis amongst animals is fortunately rare in Nigeria, although there is reason to believe that a certain number of infected cattle reach this territory every year from the Cameroons under French Mandate.

131. It is estimated that about half a million head of cattle and approximately ten times that number of sheep and goats are slaughtered in Nigeria every year. The bulk of these animals are slaughtered under conditions which cannot be regarded as satisfactory and efforts were made during the year to interest Native Authorities of the larger townships like Benin, Bida, Ibadan, Ife, Ilesha, Katsina, Maiduguri, Ondo, Oshogbo, Oyo, etc., to raise their standard in this respect—with partial success. Adequate facilities for clean and humane slaughter are a real desideratum in Nigeria.

132. Preventive measures against diseases in food animals capable of being transmitted to man consisted largely of securing the improvements adumbrated above; training inspectors in meat inspection; and encouraging Native Authorities to provide adequate sanitary facilities to reduce the amount of helminthic infection.

133. Of other diseases in animals of importance to man rabies calls for brief comment. Twenty-eight positive cases of canine rabies were confirmed by pathological examination in 1936. The specimens were forwarded from all parts of Nigeria, the largest number (7) from a single station coming from Bamenda in the Cameroons under British Mandate.

134. Prophylactic treatment with anti-rabic vaccine prepared at the Medical Research Institute at Yaba and at Khartoum was administered to forty Europeans and 267 Africans. Two deaths were recorded in Africans. A commencement was made of inoculating dogs with vaccine prepared in the Veterinary Department laboratories at Vom.

135. Notices were issued to the public when cases of canine rabies came to light and instructions were given to keep dogs on leads for at least three weeks. Campaigns were instituted for destroying unlicensed strays and suspected animals painlessly with hydrocyanic acid gas or carbon mon-oxide. In the coming year it is hoped to extend the area affected by the licensing sections of the Dogs Ordinance and to introduce legislation to enforce the compulsory vaccination of dogs in all licensing areas.

136. It is not proposed in this Report to refer to rinderpest and trypanosomiasis in cattle, for although they are of great economic importance to man, they are more properly dealt with in the Report of the Director of Veterinary Services.

Seasonal Prevalence of Disease.

137. Apart from the fact that there is an increased prevalence of diseases of the respiratory system in the months of December, January and February and of malaria (in Southern Nigeria) after the heavy rains in July, August and September, there is little evidence of seasonal prevalence of diseases in Nigeria. It is usual to associate epidemics of cerebro-spinal fever with the dry season, but this is believed to be due to the fact that those affected tend to crowd together in their villages at a time when the ground is too hard or unproductive to permit of farming, rather than to purely climatological factors. When the rains commence there is a dispersal from towns and villages, overcrowding is lessened and, if infection occurs, the number of contacts exposed to the disease is likely to be small.

II.—GENERAL MEASURES OF SANITATION

(a) *Sewage Disposal.*

138. Important discussions took place during the year on the subject of nightsoil disposal. For African rural communities where the nature of the soil and the level of the ground water permits, the fly-trapped 'salga' pit latrine (the main principle of which has probably been known to the better organised tribal units in Northern Nigeria for centuries) is found to be superior to other methods. Such pits can be maintained in a sanitary condition with a minimum of labour and supervision, more especially if funds permit of the use of washable cement-concrete squatting-plates to take the place of the usual earthen floor. Shuttering is required in localities where the soil is likely to cave in and it is necessary to make sure that no wells are situated within 100-150 feet of the pit.

139. The temptation to construct bucket latrines which involve considerable recurrent expenditure in the form of new buckets and labour for removal and cleansing in places where 'salgas' were suitable had to be combated during the year. In the majority of built-up areas the double-bucket system is in vogue with disposal into sea or creek by way of disintegrators (as at Lagos) or direct (as at Port Harcourt), or into trenches, fly-trapped 'salga' pits or septic tanks in places not so conveniently situated.

140. In Lagos itself, the water-carriage septic tank latrines which have replaced the former bucket type operated well on the whole and are a definite advance, though by no means as satisfactory as a properly designed water-borne sewerage system.

141. For private residences, schools, hospitals and other institutions, the double bucket system is usually employed.

It is realised, however, that this can be improved upon when funds are available. To this end, efforts were made to draw up designs for septic tank installations to serve the purpose. Although it is very desirable to keep such designs as simple and economical as possible, the following factors should be remembered:—(a) that the effluent from a septic tank is putrescible and so liable to render ground sewage-sick; (b) that enteric, dysenteric and other organisms and the eggs of intestinal parasites are capable of passing through a septic tank unaltered; and, (c) that disease-producing bacteria have been known to pollute pipe-borne water supplies as the result of fractures or when negative pressures are set up in such pipes passing in the vicinity of tanks by the cutting off of supplies or by the installation of additional services.

142. Two types of tanks are contemplated, one in which the effluent will pass into a sewer or into the tidal waters of a creek or river or for non-built up areas where the danger of sewage-sick land or

pollution of piped water supplies does not arise, and a second which is equipped with an aeration bed or filter, the effluent from which should be innocuous.

(b) Refuse Disposal.

143. The system of refuse disposal in Nigeria varies from collection by motor lorries, as in Lagos, with disposal by burning in a destructor, to collection by hand cart or head-load in the smaller stations.

144. As a measure directed against fly-breeding and rat harbourage, emphasis was constantly laid during the year on the desirability of burning all combustible refuse and in certain towns, e.g., Port Harcourt, where dumping had been taking place, this method was relinquished in favour of the more hygienic system of incineration. Authorities are sometimes tempted in this country—where plague and fly-borne diseases are a constant menace—to throw unburnt refuse into borrow-pits, low-lying land, etc., in order to accomplish the filling-in sooner, forgetting that such methods often constitute a danger and nuisance if in the neighbourhood of dwellings and that the land so reclaimed is liable to repeated subsidence over a period of ten years or more during which it cannot be used for building purposes.

145. A simple form of barless incinerator made of dried mud or mud block was introduced during the year. Except for a pan or flattened kerosene tin roof to protect this structure in the rainy season, the expense of construction entailed is minimal and well within the means of the poorest Native Administrations.

(c) Drainage.

146. Reference has been made under the section on "Mosquito and Insect-borne Diseases" to the activities of the Swamp Reclamation Committee (Lagos). A Drainage Board will take over in 1937 and will be responsible for carrying out surveys and co-ordinating drainage schemes for Lagos and its environs.

147. Important investigations on the drainage problem were carried out in Kano during the year and there would appear to be some hope of the Native Administration being able to finance a scheme for the surface water drainage and layout of Kano City—a much needed amenity, more especially in view of the danger to health resulting from the very large numbers of borrow-pits and ill-drained areas in this picturesque city.

148. Little permanent drainage work of any magnitude was carried out, although a considerable amount of temporary ditching and contour drainage was effected as an anti-mosquito measure in Lagos and elsewhere.

(d) Water Supplies.

149. In the course of his tours of inspection in Northern and Southern Nigeria and in the Mandated Territory of the Cameroons, the Deputy Director of Health Service devoted particular attention to the question of public water supplies.

150. Owing to lack of funds in the past it has only been possible to construct one public water supply which can be regarded as supplying safe and potable water; that at Lagos being referred to. In the case of several others, e.g., Enugu, the quality of the water appeared to be such as to call for comparatively little expenditure in order to render it potable, that is to say, unlikely to be the carrier of any form of disease. It is desired to stress the word "any" in this definition, since it includes

enteritis from the presence of debris, dyspepsia, constipation, etc., resulting from extremes in pH value, high iron, manganese or zinc content, etc., apart from the question of the presence of disease germs.

151. Perhaps the three more important disadvantages from which many water supplies suffer in Nigeria include:—(1) heavy initial pollution and high colloidal content of rivers such as the Challowa River at Kano, the Ogun River at Abeokuta, the Kaduna River at the town of the same name; (2) high iron content, as at Port Harcourt, resulting in staining, unpleasant tastes, the possibility of growth of *cladophora* and the blocking of pipes; and, (3) the low pH value giving rise to plumbosolvency and corrosion of pipes, as at Benin and Kano.

152. The only major waterworks under construction during the year were those at Okene in the Kabba Province of Northern Nigeria. These works are estimated to provide a flow of 200,000 gallons per day throughout a dry season of six months during which the tributaries of the impounding reservoir cease to flow. Other works of interest included the drilling of a large bore well by the Geological Survey Department at Katsina in Northern Nigeria and at Otta; and experimental work carried out by the Public Works Department in connexion with the proposals for pipe-borne water supplies for Ilorin, Jos and Zaria in Northern, and Ogbomosho in Southern Nigeria, and for the improvements in the existing supplies at Aba, Abeokuta, Benin, Kano, and elsewhere.

MINIMA AND MAXIMA ANALYSES OF LAGOS AND IBADAN WATERS (BACTERIOLOGICAL):

Source of Sample.	COLONIES PER C.C. ON NUTRIENT AGAR 2 DAYS.		B. COLI PRESUMPTIVE.			
	Min.	Max.	POSITIVE.		NEGATIVE.	
			Min.	Max.	Min.	Max.
A. Iju Water Supply:—						
1. Iju Source	548	3,200	0.5 c.c.	0.01 c.c.	0.01 c.c.	0.005 c.c.
2. Inlet to filters	53	648	10 c.c.	5 c.c.	5 c.c.	2 c.c.
3. Effluent from filters ...	1	121	5 c.c.	2 c.c.	50 c.c.	20 c.c.
4. Engine House tap ...	2	21	—	100 c.c.	—	100 c.c.
5. Meter House tap ...	1	22	—	100 c.c.	—	100 c.c.
6. Standpipes and taps ...	2	134*	10 c.c.	5 c.c.	100 c.c.	20* c.c.
B. Ibadan Water Supply:—						
1. Moor Plantation raw water	238	10,000	0.002 c.c.	0.001 c.c.	10 c.c.	0.5 c.c.
2. Moor Plantation treated water	5	824	2 c.c.	1 c.c.	100 c.c.	1 c.c.
1. Ogunpa raw water ...	379	10,000	0.01 c.c.	0.005 c.c.	100 c.c.	5 c.c.
2. Ogunpa treated water ...	52	1,270	1 c.c.	0.5 c.c.	100 c.c.	10 c.c.

*One occasion only. Sample taken after repairs to a burst main had been carried out. The normal figure is around 20.

(Sgd). C. L. SOUTHALL,
Government Analyst.

153. Numerous analyses, both chemical and bacteriological, were carried out on a variety of water supplies by the Government Analyst and, in so far as bacteriological tests are concerned, by the Pathologist at Port Harcourt. The table facing this page gives the results of bacteriological analyses of two water supplies in Southern Nigeria, one potable and the second non-potable.

(e) *Clearing of Bush and Undergrowth.*

154. Efforts were made in most of the larger towns where an organised sanitary service or Native Administration labour were available to keep down the growth of long grass within the townships and around the periphery. In Southern Nigeria where the rainfall is relatively high, difficulty was experienced in securing this desideratum and the Health Authorities had to be content with periodical clearing of bush for a depth of thirty to a hundred feet along roadways.

155. In the past, a certain amount of trouble has arisen from farming in towns and residential areas. In certain forms of cultivation the farmer creates mosquito-breeding conditions by making furrows or excavating heaps for yams, cassava and the like. Moreover, high crops give cover for promiscuous fouling of the ground and for deposits of tins and refuse. For this reason, agreement was reached in several instances to restrict farming in towns and close to European quarters in residential areas to low crops not requiring furrows—maintaining a strip at least twenty feet in depth round compounds completely free from crops, undergrowth, etc.

156. Reference has been made in a previous section to the clearing of tsetse-infested areas at fords, river crossings, village watering pools, etc., as an anti-sleeping sickness measure. ✓

(f) *Domiciliary Inspections.*

157. In a country where epidemic diseases of the nature of plague, yellow fever, smallpox and cerebro-spinal meningitis are liable to occur at any moment, it is natural that considerable importance should be attached by the Health Authorities to house-to-house visits. In Lagos alone some 170,141 of such inspections are reported by the Medical Officer of Health to have been carried out by the inspectorate staff in 1936. This figure does not take into account the large numbers of visits carried out at the same time by the staff of Health Visitors working in conjunction with welfare centres.

(g) *Offensive Trades.*

158. There are few activities in Nigeria which fall under the definition of "offensive trades", although certain may give rise to nuisance unless carefully supervised.

159. The curing of hides and skins is an important industry at Kano and, to a lesser extent, at Lagos and in other large centres. The skins are treated with a solution of sodium arsenite and, although the process is undoubtedly malodorous, there are comparatively few flies and no breeding takes place in the wastes.

160. The manufacture of ghee at Jos and Kano, to mention the two more important places, also gives rise to a certain amount of unpleasant, rancid odour. The wastes which contain a considerable amount of fat and protein presented a problem until it was discovered that these became quite innocuous when treated with a strong solution of slaked lime.

161. Dyeing of native cloths, particularly with the popular dark blue native dye in towns in South Western Nigeria, as for example, Abeokuta, Ibadan, Ife, Ilesha, Oshogbo and Oyo, was found to be associated at times with mosquito-breeding in the dye pots not in actual use.

III.—SCHOOL HYGIENE.

162. Close co-operation existed during the year between the members of the Education and Medical Departments on the subject of the hygiene of schools and every opportunity was taken by inspecting

officers to make contact with school teachers and their pupils by visits to schools, talks to teachers and cinematograph displays, and by associating schools with such activities as Health Weeks, Health Days, School Cleanliness Competitions, and the like.

163. No organised school medical service exists in Nigeria outside Lagos and in this town it is only possible to touch the fringe of school medical work by means of a school clinic staffed by a trained Health Sister and dispenser. When opportunity arose, Medical Officers of Health carried out the medical inspection of school children. It might be of interest to quote the findings of the Medical Officer of Health, Port Harcourt, amongst children examined in a better class school (A) and in an average school (B). It should be noted that School A was examined shortly before the peak of the rainy season and School B during the dry season.

	Development.					Poor.	Total.
	V. Good.	Good.	Fair-Good.	Fair.			
School A ...	54	65	12	35	4	170	
School B ...	51	92	15	43	6	207	

Diseases and Defects on a Percentage Basis.

		School A.	School B.
Skin—including scalp ...	...	19.4	24.6
Not vaccinated ...	...	—	—
Enlarged glands—mainly cervical	...	49.4	44.4
Enlarged spleen ...	...	10.0	9.1
Anæmia ...	...	19.4	27.5
Mouth ...	...	—	1.4
Teeth—primary	...	3.3	4.1
,, —secondary	...	—	0.48
Throat—tonsils mainly	...	46.2	24.1
Nose ...	...	3.5	4.8
Ear ...	...	—	0.9
Eye ...	...	2.3	0.48
Heart—hæmic bruits ...	...	8.2	1.4
,, —dilatation	...	2.9	1.4
Lungs ...	...	0.58	0.48
Hernia—umbilical	...	4.7	2.8

164. Commenting upon these results, Dr. Gordon wrote as follows:—

“ Skin and glandular conditions show little change from last year as does enlargement of spleen. There is a marked decrease in anæmia.

Throat defects are much higher than average, in School A, particularly as regards enlarged tonsils. Although this may be associated with the wet season, nevertheless a considerable number of cases of enlarged tonsils would appear to be due to defective diet.

It was ascertained that in many cases the staple food was ‘ garri ’, and/or, unpolished rice.

The association of enlarged tonsils and defective diets has been noted in England, and particularly in the new housing areas, which have been occupied by ex-slum dwellers. Amongst these, the expenditure on food bears a low ratio to the total family budget. It is probable that a similar state of affairs is arising here.”

165. It is still a somewhat frequent occurrence to find hygiene being taught amid surroundings which can hardly be described as hygienic, but every effort is being made to combat mere lip service.

IV.—LABOUR CONDITIONS.

166. The increased prosperity enjoyed by Nigeria in 1936 undoubtedly influenced the labour market in a favourable manner. Concurrently, however, the rise in world prices of staples like palm oil, palm kernels, ground nuts, etc., reduced the purchasing power of an individual labourer's wages. In some cases the increase in price was two, three and even fourfold, as, for example, in the case of palm oil, and gave rise to real hardship. Government has shown its sympathy in this connexion by appointing a board to investigate the question of an increase in wages for labourers and artisans.

167. Developments in the minefields and on the plantations have resulted in a demand for labour greater than the supply available. In this connexion mention should be made of important discussions, which took place towards the end of the year between the mine and plantation managements and the Health Authorities, regarding medical and health services to the mines and plantations, and the much needed improvement in the housing of labourers and in the sanitation of the labour camps. In order to serve as a guide to the form which Health requirements might be expected to take, a memorandum Appendix D was issued by the Department during the year to all the more important employers of labour. Definite progress in the housing and care of labourers can be recorded in the case of several plantations, but the conditions amongst the mining community have not improved as had been hoped.

168. Managements who have taken their responsibilities towards their African employees seriously have constructed good types of housing and made available adequate food and water supplies, satisfactory systems for the disposal of nightsoil and refuse and for the general sanitary organisation of the camps. Others have been content to house their labour in small, dark and ill-ventilated grass huts without windows and with mud floors, inadequate arrangements for water supply, latrines, etc., being made.

169. Up to the present the Health Authorities have not sought to have penalties inflicted for failure to meet moral and legal obligations, preferring to rely upon the willing co-operation of managements. It is desirable to mention that the Public Works Department which is one of the biggest employers of labour in Nigeria entered whole-heartedly into the scheme for improving their labour camps.

170. Special action had to be taken to prevent workers who became infected with sleeping sickness along the rivers where alluvial gold is worked (in particular in the Niger and Sokoto Provinces of Northern Nigeria) from taking back the disease with them to their native villages and so disseminating infection. Such labourers received a course of trypanocidal drugs for a period of six weeks if they were detected with the disease on the occasion of the medical inspections carried out periodically and before their return to their houses.

V.—HOUSING AND TOWN PLANNING.

171. In view of the rapid growth of towns and villages in Nigeria, and of the chaotic conditions that inevitably arise when building goes on with little or no reference to building line, area of site to be built over and so on, it was decided during the year to submit special representations to Government for the appointment of a Town Planning Officer and the nucleus of a town planning cadre. The duty of this team would be to make rapid surveys of the more important areas where town extensions were contemplated or in actual operation.

172. In practice, rigid control over building is only possible in such places as Lagos and Port Harcourt where the staff is adequate. In many townships where a certain amount of control can be exercised

legally over buildings, it rarely happens that officers are available. Whilst in the majority of towns in both Northern and Southern Nigeria building is left very largely to chance, it is sometimes possible to keep builders to a line so many feet back from the middle of the road.

173. Very useful work continued to be carried out in Lagos by the Lagos Executive Development Board in clearing away some of the worst of the old plague-ridden slums and in laying out new streets, plots and open spaces. Yaba, the suburb of Lagos, continued to develop on sound lines.

174. A considerable amount of work was done at Kano in connexion with the layout of the town, and the Medical Officer of Health reported that good progress had been made by his staff with the laying out of Fagge, an extra-rural suburb of Kano City which was rapidly becoming over-congested by an ever-growing floating population. Similar work was also reported by the Health Authorities at Bida and Sokoto.

175. In order to assist in the layout of villages a plan was drawn up on the lines of one originally designed for the Gold Coast which had proved very successful in that colony.

176. Lest perusal of this section may give too pessimistic a view of the situation, it should be made quite clear that the African is highly receptive of modern ideas and will usually follow advice on housing and town planning if he receives the necessary guidance; and there can be no doubt that considerable progress has been made in the matter of housing during the last decade or so.

VI.—SANITATION IN MINES AREAS.

177. This subject has been touched upon briefly in the section IV. Apart from the Government owned and controlled coal mine at Enugu, there are two main classes of mines in Nigeria, those yielding tin and gold. In both cases the workings are very largely above ground so that the special dangers from silicosis, "miners phthisis", etc., which beset mine employees in the sister colony of the Gold Coast are less likely to arise. Hookworm is, however, commonly met with, outbreaks of cerebro-spinal fever occur from time to time, and respiratory disease is common. The first condition indicates the need for strict attention to nightsoil disposal and the second and third to the provision of adequate housing of an hygienic character.

178. Up to the present mine managements have been in the habit of constructing rough temporary camps of grass, guinea corn stalks and similar materials with little or no regard for ventilation and other needs. The reason given is that the workings change owing to the nature of alluvial mining activities and that, in consequence, permanent camps would be too costly. Against this argument is the fact that permanent camps of excellent type have been constructed by managements of alluvial workings in the Gold Coast (miners are always prepared to walk two or three miles or even further to work if necessary) and that some of the existing so-called temporary camps in the Nigerian tinfields—as, for example, Rayfield—have been in existence for many years.

179. A further objection to improvement in camp sanitation raised by certain mine managements during the year had its basis in the accepted fact that quite a large proportion of mine labourers work for a short period, long enough to earn their tax and to enable them to buy a few clothes, ornaments, etc., from the local stores, and then return to their native villages. Difficulties of this kind attendant upon the turn-over of labour are met with all over the tropical world but have been successfully minimised in such places as the Roan Antelope Mine in Northern Rhodesia by the management taking the trouble to render their labour camps attractive and healthy. There is no reason why this should not be done in Nigeria and the time is over-ripe for such action.

180. Water supply at many of the gold mines is derived from the nearby river. In most mining camps, however, water is obtained from wells. These wells are sometimes protected from gross contamination but are usually unlined, have little or no apron surround or raised coping.

181. Nightsoil disposal usually takes the form of unprotected 'salga' pits, but some managements have constructed fly-trapped 'salgas' with roofs and sides and, sometimes, cement-concrete squatting plate floors which constitute a useful anti-hookworm measure. Refuse is burnt in field incinerators in the better type of mine camp; in others it is dumped into holes. Small markets are provided in or near camps and, in a minority of cases, slaughter slabs on which cattle, sheep and goats can be killed and cut up.

182. In those camps where real interest is taken by the management in hygienic matters, the interior is kept clean and drained and a clearing maintained round the periphery. In others the surroundings are far from satisfactory. To sum up, certain mine managements have made creditable attempts to improve the conditions under which their labourers live and work and others have not done so.

VII.—RURAL SANITATION.

183. Rural sanitation is in a very primitive state in Nigeria. This is partly due to ignorance but largely to the lack of funds and supervisory personnel. Apart from the individual efforts of inspecting officers and the Medical and Administrative Officers in charge of districts, there is little possibility under existing conditions of bringing about any considerable degree of progress in the rural areas.

184. The question was discussed during the year of a considerable increase in staff to be employed in rural areas in the south—where conditions are rendered particularly difficult owing to the fact that Native Administration units are smaller than in the Northern Provinces. The Chief Commissioner of the Southern Provinces has suggested that programmes of work over a period of five years, including the provision of adequate sanitary personnel, should be drawn up by each Native Administration and that these should include a statement of the funds available to carry out the projects.

VIII.—FOOD IN RELATION TO HEALTH AND DISEASE.

1.—Markets.

185. Taken as a whole the markets in Northern Nigeria, as at Birnin Kebbi, Gusau, Kaduna, Sokoto and Zaria (Sabon Gari), compare more than favourably in siting, layout and general arrangement with those in Southern Nigeria. This is due very largely to the powerful influence of "vested interests" in the south which result in a town having a number of small, insanitary and congested markets in more than one quarter. Exceptions to this are found at Aba and Port Harcourt where the local authorities showed considerable foresight in selecting sites of sufficient size on the outskirts of the town to leave adequate room for extension for some time to come.

186. Such places as Abeokuta and Lagos—to name but two—unfortunately possess a number of markets, some having a very dilapidated and slovenly appearance, scattered in different quarters of the town and overflowing into the surrounding streets. Efforts were

made to persuade Native Administrations to extend such markets as were capable of being rendered sanitary and to close down the most congested and unhygienic, but so far without much success.

187. Important progress was, however, made in the case of Lagos markets, in some of which the stall holder had been responsible for roofing his stall. The Lagos Town Council decided to break away from this system, which had such an unsatisfactory effect on the appearance and hygienic arrangement of markets, and to rebuild in concrete with cement-concrete roofs—following on a successful experiment at Warri. In course of time it is hoped to replace those Lagos markets which still present an unattractive appearance with a type that is orderly, solid and easily cleansed.

188. It cannot be stressed too often that foodstuffs should be sold under hygienic conditions and that these are rarely attainable in crowded markets constructed of packing cases, kerosene tins, sacks and other unsightly materials. Two other points are not infrequently overlooked, first, that in growing towns the site selected for markets should be several times larger than that needed for immediate requirements, and should, preferably, be situated on the outskirts of a town to permit of even further extension if necessary; and, secondly that properly organised markets are rich sources of revenue—such funds being available for general town development.

189. Important improvements to existing markets were effected during the year at Port Harcourt and Warri, to mention two southern towns, and at Birnin Kebbi, Gusau, Minna and Sokoto in the north.

2.—Slaughter Houses.

190. The new slaughter house at Apapa dealt with nearly 20,000 cattle, goats, pigs and sheep during the year. Slaughter-slabs with effective drainage and disposal of blood and bowel contents in fly-trapped “salga” pits were constructed in many smaller localities and constituted a great improvement.

3.—Cattle Kraals.

191. Little by little the Native Authorities are being persuaded to give up the system of kraaling cattle in the middle of towns, where they aggravate the problem of dealing with flies, and to construct kraals of mud or strong thorn bush at a distance outside the town. This improvement has not yet been extended to such places as Sokoto, but no doubt this will happen in time. Objections to siting kraals outside towns on the grounds of fear of wild animals are becoming fewer as the country is opened up and transport facilities are developed.

192. The kraal and lairage at Malu, Apapa, functioned well and catered for thousands of heads of cattle brought into the kraal by railway.

4.—Dairies.

193. No properly constituted privately owned dairies were seen during the year and, apart from milk obtained at Vom, it is exceedingly doubtful whether conditions for milking are sufficiently satisfactory to justify anyone consuming locally produced milk unless it is boiled or efficiently pasteurised. There would appear to be some possibility of a satisfactory dairy being established by a private individual at Buea in the Cameroons in the not distant future. Reference has been made earlier in this report to the local production of ghee.

5.—*Aerated Water Factories.*

194. Several of the larger centres of population possess aerated water factories. The Medical Officer of Health, Lagos, stated in his Report for 1936 that the four factories operating in Lagos were inspected seventy-four times and that one of these had to be closed owing to unsatisfactory bacteriological results obtained on analysis. These factories constitute dangers from the point of view of epidemics of the enteric group of organisms, especially where syrups are handled, and so require a considerable amount of surveillance.

6.—*Bakehouses, Restaurants and Eating Shops.*

195. As in the case of aerated water factories, bakehouses, restaurants and eating shops have to be licensed annually in towns to which the Rules under the Public Health Ordinance have been applied. The licence is not issued until the premises have been inspected by the Health Authority and then only under certain conditions.

7.—*Food Inspection.*

196. Markets, slaughter houses, shops, restaurants, etc., were subjected to frequent visits during the year and efforts were made to raise the standard under which food was sold. Quantities of foodstuffs of various kinds had to be condemned and were destroyed.

8.—*Deficiency Diseases.*

197. No deaths were registered from deficiency diseases in the five towns from which records of causes of death were obtained during 1936. On the other hand, amongst rather over 710,000 patients treated at the various hospitals, twenty-six were diagnosed as suffering from beri-beri, thirty-three from scurvy, seventy-nine from rickets and 441 from hypovitaminosis. It is not known whether the cases of rickets were confirmed by radiogram, without which it is somewhat difficult to differentiate the disease from one or other of the protean manifestations of yaws.

198. It is difficult to assess the amount of ill-health in the general population caused by insufficient or unsuitable foods, but it is significant that respiratory diseases give rise to a greater proportion of registered deaths than any other group.

199. Lack of vitamins is not an uncommon feature in the dietaries of the poorer sections of the population, especially in some of the larger coastal towns like Lagos. Many cases of perléche and of the retro-bulbar neuritis first described (as far as Nigeria is concerned) by Fitzgerald Moore were encountered amongst the out-patients attending hospitals. These cases are considered to be pellagrinous.

200. A special investigation was carried out in the Southern Provinces towards the end of the year by a Medical Officer of Health with considerable experience in African dietaries. He found about ten *per centum* of the school children examined in certain areas to be suffering from vitamin deficiency.

201. Propaganda was carried out, particularly in connexion with schools and boarding institutions, with the object of teaching the members of the community what they should eat in order to keep fit and how to avoid the ill-effects of an unbalanced diet. In addition, efforts were made to encourage the cultivation of citrus, mangoes and other trees and crops in school gardens.

202. It is proposed to bring up-to-date and to issue on rather more simple lines a pamphlet on foodstuffs giving advice on diets.

IX.—THE WORK OF THE MISSIONS.

203. To estimate the value of the medical work done by the missions in Nigeria would indeed be a hard task. Some of the most valuable medical mission (and Toc H) work is done in connexion with the various leper settlements including those at Itu, Ozuakoli, Ogbomosho and Oji in Southern Nigeria and at Katsina, Sumaila and Zaria in Northern Nigeria. Leper work is pre-eminently an activity in which the missions excel.

204. Valuable health teaching is also carried out by the various missions in their schools.

B.—MEASURES TAKEN TO SPREAD KNOWLEDGE OF HYGIENE AND HEALTH.

I.—TRAINING OF HEALTH PERSONNEL.

205. There are four schools in Nigeria at which the sanitary inspectorate staff receive training. One of these is situated at Ibadan in Southern Nigeria and is devoted to the training of candidates for posts under the various Native Administrations. The period of training at this school was originally fixed at two years, but it is proposed, as an experiment, to reduce this to eighteen months; this coincides with the normal length of tour of the Sanitary Superintendent seconded for teaching duty. The Medical Officer of Health, Ibadan, reporting on the activities of this centre in 1936, stated that "The rate of absorption of knowledge by the type of trainee at this training centre is naturally slow and it is not considered practical to shorten the period of training beyond eighteen months, but rather to revise the syllabus of training to omit those subjects considered of least practical importance to the African sanitary inspector in the Bush".

206. Twenty-nine students were under training at the end of 1936, all but three coming from the Southern Provinces. The centre is particularly well equipped having fifty-eight full size and permanent models and a museum of nearly 600 models of sanitary structures, charts, paintings, specimen bottles, insects, etc.

207. A second training centre for Native Administration sanitary inspectors functioned during the year at Umudike in the eastern part of Southern Nigeria. Thanks to the co-operation of the Education Authorities this centre possesses an advantage not yet enjoyed by that at Ibadan, namely, that students are housed in dormitories of the Government College where they are subject to better discipline and control. Thirteen students were undergoing training at Umudike at the end of the year.

208. The Medical Officer of Health, Umuahia, who is responsible for the teaching there, reported that during the summer special intensive courses of a fortnight's duration were given to thirty selected teachers from Government and mission schools in neighbouring provinces. Short refresher courses were also given at this centre to Native Administration Sanitary Inspectors who had been employed for some time in areas where supervision was largely lacking.

209. Lagos continued to serve as a third centre for training; the six students here were preparing for the posts of Government and Municipal Sanitary Inspector. The Medical Officer of Health has an assistant and several experienced Sanitary Superintendents to help him in training officers and the standard aimed at is considerably higher than is possible with the type of student presenting himself for training at the first two centres described in this section.

210. The fourth training centre is situated at Kano where a well-equipped school and living quarters are available for the Sanitary Inspectors-in-training. At the close of 1936 fifteen Native Administration and two Government students were undergoing training here. As in the case of Ibadan, a Sanitary Superintendent with experience in training of students is in immediate charge of the school under the guidance of the Medical Officer of Health. In order to give a very definite practical bias to the training, the officer in charge of the school also has sanitary control of the neighbouring town and his students are frequently employed on the actual construction of sanitary structures for the use of the general public.

211. Before leaving the subject of the training of Health personnel, mention should be made of the training of Health Visitors in Lagos carried out by a fully qualified and experienced European Health Sister. This cadre works in close co-operation with the various maternal and infant welfare organisations and is a potent factor in the campaign directed towards the saving of infant life and the raising of the standard of domestic hygiene.

II.—GENERAL HEALTH EDUCATION.

212. Mention has been made in the preceding section of this report of the intensive courses in hygiene to groups of school teachers.

213. Perhaps by far the most important progress in public health education recorded during the year related to the establishment of the mobile propaganda unit with cinema and loud speaker apparatus under a senior Sanitary Superintendent who has had a considerable amount of experience in health propaganda work. The mobile unit toured Southern Nigeria and, through it, a large section of the public were brought into touch with matters relating to the health of themselves and the hygienic conditions of their houses, towns, and so on.

214. In order further to stimulate interest in the prevention of disease and in the securing of improvements in environmental hygiene, it was decided to establish a number of rural health units to operate on similar lines to those in the Southern States of America, and elsewhere and the Village Health Leagues in Ceylon. Four of such units were formed in co-operation with the Administration and the Native Authorities in Southern Nigeria, at Benin, Ife, Ilaro and Ondo. Should these prove successful the idea will be extended. The aim is to associate the local community with both curative and preventive medical work in the area.

215. When financial considerations permit, model rural dispensaries will be constructed together with model houses for the Dispenser, Midwife and Sanitary Inspector-Vaccinator. In addition, provision will be made in the combined compound for model wells, latrines, incinerators and the like so that every person visiting the dispensary will learn from a "living" example how to improve conditions in his own particular village.

216. Other methods of general health education utilised during the year consisted in the holding of Health and Baby Weeks and of inter-school competitions, giving of public lectures, supplying of models of sanitary structures to schools and publishing of talks on hygiene and kindred topics in the *Nigerian Teacher*—now called *Nigeria*.

217. In 1937 arrangements have been made to get into touch with an even larger section of the population by utilising the extension of Government Broadcast system to all the more important scholastic institutions in Lagos.

IV.—PORT HEALTH WORK AND ADMINISTRATION.

218. Lagos and Port Harcourt remained free from any recognised cases of yellow fever, plague, cholera, typhus and smallpox during the year under review. Owing to the occurrence of yellow fever at Calabar, however, that port was declared infected in November, 1936.

219. Only three cases of smallpox were reported from Lagos during the year none of which were from the actual port area itself. The Port Health Officer, Lagos, in his Annual Report for 1936, stated that the shipping tonnage for 1936 amounted to 2,020,540 representing an increase of 179,902 tons over the figure for 1935.

220. Three deratification certificates and five exemption certificates were granted to merchant vessels entering Lagos during the year. Nine coastal marine craft and eighty-two lighters were fumigated with hydrocyanic acid gas, Zyklon B or Celophite Discs being used. All rats trapped abroad ship were examined, but none were found plague-infected.

221. Passengers to the number of 13,484 were medically inspected at Lagos, as compared with 10,361 in the previous year. When necessary, these passengers were vaccinated against smallpox and had their baggage disinfected. Four cases of evasion of medical inspection were encountered and action taken.

222. No cases of the five dangerous infectious diseases named in the International Sanitary Convention were found on board ship, but eighteen persons, including the captain, chief officer and sixteen Chinese crew were disembarked suffering from fever which was thought, at first, might be yellow fever. All recovered.

223. Systematic inspection of all craft in the harbour was carried out. Mosquito larvae were only found on five occasions out of 68,222 inspections carried out.

224. The Seaman's Clinic for Venereal Diseases at Apapa Quay continued to do useful work. 2,160 seamen availed themselves of the prophylactic facilities and forty-seven patients were seen by the Port Health Officer.

225. The quarantine station at the West Mole was put into a thorough state of repair during the year, but did not have to be used. It lacks an adequate water supply and is open to the surrounding countryside. It is doubtful, however, whether the expense involved in surrounding this extensive area with an unclimbable fence resistant to rust from sea spray, etc., would be justified.

226. At Port Harcourt, the Port Health Authority reported that 372 ships were dealt with on arrival in port during the year, an increase of fifty-seven over 1935. Only one ship was found infected having a case of modified smallpox on board. The usual precautions were taken including the vaccination of 101 of the crew. Some 4,000 deck passengers were medically examined of whom 412 were vaccinated. This compares with 4,135 passengers examined in 1935.

227. The Port Health Authority at Calabar reported that 280 ships were boarded on arrival in port, representing an increase of sixty-eight over the figure for the previous year. No cases of quarantinable infectious disease were found amongst the passengers examined of whom 401 were vaccinated.

V.—MATERNITY AND CHILD WELFARE.

228. *Training of Midwives.*—During the year seven certificates as Grade I Midwives and twelve certificates as Grade II Midwives were granted. The course of training for the higher grade extends over a period of two and a half years, and for the lower grade, of six months.

229. Recognition has now been given by the Board of Midwives to four Government and three Mission institutions as Grade I training centres and to six Government and Native Administration and nine Mission institutions as Grade II training centres. All these training centres are in the South with the exception of three Grade II centres in the Northern Provinces.

230. The number of midwives registered under the Midwives Ordinance, 1930, has increased year by year from twenty-seven in 1932 to seventy-one at the end of 1936, of whom thirty-one possessed the Grade I Certificate and forty the Grade II. The Midwives Board held four meetings during the year.

231. *Maternity.*—The Massey Street Dispensary, Lagos, was opened originally as a general dispensary and later was developed into a maternity and child welfare centre with twenty-three maternity beds. Each year its work has increased and the volume of work is now so great that it is more than the buildings, staff and equipment can cope with adequately. It is not possible to extend the present buildings and the construction of a second hospital for maternity and the diseases of women is contemplated.

232. Of the Government and Native Administration general hospitals none has a maternity ward with more than eight beds, but during the year more of these small wards were built at hospitals which did not previously possess them. The Aba and Calabar Maternity Centres built in 1935 with grants from the Colonial Development Fund, each contain twelve beds. As the results of the efforts of the ante-natal clinics and of the gradual extension of lying-in facilities the number of maternity cases seeking institutional care has been increasing year by year. Last year there were 1893 deliveries in the Government and Native Administration hospitals and maternity centres as compared with a total of 1,459 deliveries in 1935 and 300 in 1930.

233. *Child Welfare.*—In most Government medical stations there are now infant welfare clinics which are held at intervals of a week or less at the hospital or some separate centre. During the year, the number of Government and Native Administration Child Welfare Centres increased from thirteen to seventeen in the Northern Provinces and twelve to twenty in the Southern Provinces. Mission Centres were increased from twenty-eight to thirty in the North and remained stationary at twenty-seven in the South. There are now ninety-four recognised Child Welfare Centres in Nigeria.

234. Infant welfare and health visiting work in Lagos is reported upon by the Medical Officer of Health in the report issued by the Lagos Town Council. The following is a summary of the work carried out in 1936:—

Health Visiting.—A total of 35,956 home visits have been paid by the Health Visitors during the year.

Infant Welfare Clinic.—150 clinics were held in Lagos and forty-nine at Ebute Metta during the year; the total attendance at the clinics was 7,870.

235. The following tables give details of health visiting and clinic work respectively:—

HEALTH VISITING DURING 1936.

			Lagos.	Ebute Metta.	Combined.
New cases reported born within township	...	...	3,227	885	4,112
" " " " " outside "	...	...	99	16	115
Total new cases for the year	...	...	3,326	901	4,227
Number of babies alive at first visit	...	...	3,191	890	4,081
" " " dead "	...	...	135	11	146
" " " mothers alive at first visit	...	...	3,318	900	4,218
" " " dead "	...	...	8	1	9
" " " cases not found at first visit	...	...	—	—	—
Total revisits ...	...	...	19,395	4,697	24,092
Cases attended by Medical Practitioners	...	...	1,038	58	1,096
" " " native medicine men	...	...	2,288	843	3,131
" " " induced to attend Dispensaries	...	...	555	42	597
Number of following up cases of sick children	...	...	1,098	316	1,414
" " " visits	...	...	6,349	1,215	7,564
" " " special cases visited for Lady Medical Officer	...	...	3	3	6
" " " visits paid to the special cases for Lady Medical Officer	...	...	32	29	61
" " " cases found casually by Health Visitors	...	...	277	17	294
" " " ante-natal cases found and induced to attend Dispensary	...	...	1	—	1
" " " visits paid to the ante-natal case	...	...	12	—	12
Total number of home visits paid	...	...	29,114	6,842	35,956
" " " " 1935	...	...	26,163	6,927	33,090

INFANT WELFARE CLINICS, 1935-1936.

			1935.			1936.		
			Lagos.	Ebute Metta.	Com-bined.	Lagos.	Ebute Metta.	Com-bined.
Number of clinics held	...	...	148	51	199	150	49	199
" " infants on Register	...	...	2,678	774	3,452	2,628	739	3,367
" " attendances	...	...	5,871	1,950	7,821	6,262	1,608	7,870
" " who attended once	...	...	1,230	325	1,555	1,222	408	1,630
" " twice	...	...	721	186	907	623	163	786
" " thrice	...	...	363	116	479	309	55	364
" " four times...	...	...	153	47	200	179	36	215
" " five "	...	...	74	37	111	117	26	143
" " six "	...	...	42	20	62	53	16	69
" " seven "	...	...	30	12	42	34	9	43
" " eight times and over	...	...	56	31	87	91	26	117
" " of mothers with an occupation	...	...	1,634	427	2,061	1,527	369	1,896
" " without a definite occupation	...	...	1,044	347	1,391	1,101	370	1,471
" " cards properly filled in	...	...	2,623	764	3,387	2,524	681	3,205
" " not properly filled in	...	...	55	10	65	104	58	162
" " cases referred to Massey Street Dispensary for treatment	...	...	470	146	616	617	132	749
" " admitted to Massey Street Dispensary	...	...	5	...	5	6	...	6
" " admitted to African Hospital	...	...	...	...	...	...	...	...
" " referred to " " Private Doctors	...	...	1	...	1	3	2	5
" " " " Private Doctors	...	...	10	4	14	15	1	16
" " Deaths	...	...	122	11	133	158	18	176
" " spleens palpable	...	...	110	63	173	39	33	72
" " mothers removed and out of town	...	...	488	16	504	872	5	877
" " motherless infants	...	...	13	3	16	13	9	22
" " food demonstrations given at the Clinics	...	...	...	1	1	1	...	1
" " attendances at food demonstrations	...	...	...	80	80	18	...	18
" " baby bathing demonstrations given at the clinics	...	...	5	6	11	16	12	28
" " attendances at bathing demonstrations	...	...	207	249	456	627	409	1,036
" " cases referred for circumcision	...	...	8	3	11	1	2	3

236. Abnormal conditions recorded most commonly in babies attending the infant welfare clinics included thrush (216), cough (198), scabies (178), chafing (93), fever (82), bronchitis (62), constipation (49), ophthalmia (46), marasmus (31), rash (53), boils (22), diarrhoea (21), mastitis (19), sweat rash (19), conjunctivitis (17), pemphigus neonatorum (12), vomiting (11), tinea (11), worms (11).

237. *Infant Deaths.*—The most prevalent causes of infant deaths recorded were broncho-pneumonia (99), infantile convulsions (97), congenital debility (84), bronchitis (60), premature birth (58), malaria (34), diarrhoea and enteritis (27), injury at birth (18), congenital syphilis (7). The sharp rise in the infant mortality rate further emphasises the necessity for an adequate health visiting staff, and for legislation for the early notification of births in the Township to the Medical Officer of Health within twenty-four hours.

238. *Fathers' Meeting.*—A successful fathers' meeting was held at 7 o'clock one evening in July in the yard of the Medical Headquarters.

239. *Maternal mortality.*—There were twenty-nine deaths of mothers due to causes directly connected with pregnancy and childbirth. This works out at a maternal mortality of 7.1 per thousand births as compared with 7.5 per thousand births in 1935.

VI.—HOSPITALS AND DISPENSARIES.

A.—HOSPITALS AND HOSPITAL STATISTICS.

240. No new hospitals were built in 1936, but certain African Hospitals were enlarged by the construction of additional wards. A new ward block was completed at Enugu; a female ward of permanent construction was built at Owerri at a cost of £400 provided by the Native Administration; two new wards each of twenty-five beds were built at Jos with funds provided by the Jos Native Administration and were opened by His Excellency the Governor in June, 1936; and a female ward of twenty-four beds was provided at Degema from Native Administration funds. In the African Hospital, Lagos, a children's ward of eighteen cots was opened and two wards with thirty-two beds were allotted to female patients.

241. Arrangements had also been made before the close of the year for the mosquito-proofing of certain wards of the European and African Hospitals at Lagos, Kano and Maiduguri, in connection with the new Anti-amaryl aerodromes at those places.

242. The following tables show the types of the hospitals which have been maintained and the facilities which exist:—

NIGERIA.

EUROPEAN HOSPITAL STATISTICS, 1936.

No.	Name of Hospital.	NURSING STAFF.													
		NUMBER OF OPERATIONS.						AFRICANS.							
		European Sisters.			Female.			Male.			Female.				
		Total.	Major.	Minor.	Total.	Male.	Total.	Total.	Male.	Total.	Total.	Total.	Total.		
1	Calabar	...	...	...	24	5	29	—	218	29	247	276	14	
2	Enugu	...	...	...	1	77	20	97	2	354	98	452	549	5
3	Ibadan	...	...	...	4	69	16	85	4	323	61	384	469	5
4	Jos	...	...	...	3	93	27	120	5	385	113	498	618	6
5	Kaduna	...	...	...	5	126	23	149	6	248	91	339	488	8
6	Kano	...	...	...	4	77	17	94	4	299	40	339	433	2
7	Lagos	...	...	...	6	274	82	356	10	1,018	246	1,620	28	8
7a	Lagos, Ebute Metta European Dispensary	...	...	...	—	—	—	—	—	293	37	330	330	—
8	Lokoja	...	...	...	4	—	—	5	—	56	3	59	64	1
9	Onitsha	...	...	...	4	—	—	15	1	16	—	82	16	—
10	Port Harcourt	...	...	...	13	2	3	53	36	89	—	457	114	4
11	Victoria	...	...	...	4	—	—	11	4	15	—	87	31	1
12	Warri	8	—	—	3	54	9	63	—	205	44	3
Totals		...	...	...	144	4	29	878	240	1,118	31	4,025	923	48
												55	380	38	
												4,948	6,066	10	
												16½	435	48	

AFRICAN HOSPITAL STATISTICS, 1936.
NORTHERN PROVINCES.

AFRICAN HOSPITAL STATISTICS, 1936.

SOUTHERN PROVINCES.

No.	Name of Hospital.	Type of Hospital	No. of Beds.	C.G. or N.A.	In-PATIENTS ADMISSIONS.			Out-PATIENTS TREATED.			OPERATIONS.			Total.	Female	Male
					Male.	Female.	Total.	Male.	Female.	Total.	Major.	Minor.	Total.			
1	B	Aba	87	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
2	C	Abakaliki	16	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
3	B	Abeokuta	100	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
4	D	Afikpo	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
5	C	Agbor	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
6	C	Akure	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
7	C	Bamenda	—	N.A.	—	—	—	—	—	—	—	—	—	—	—	—
8	D	Banso	—	N.A.	—	—	—	—	—	—	—	—	—	—	—	—
9	C	Benin City	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
10	B	Calabar	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
11	C	Degema	—	C.G. & N.A.	—	—	—	—	—	—	—	—	—	—	—	—
12	B	Enugu	88	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
13	C	Forcados	12	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
14	B	Ibadan, Adeoyo	41	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
15	C	Ibadan, African	—	N.A.	—	—	—	—	—	—	—	—	—	—	—	—
16	C	Ijebu-Ode	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
17	C	Ikot-Ekpene	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
18	C	Kumba	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
19	B	Lagos, African	197	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
20	B	Lagos, Massey Street	23	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
20a	C	Lagos, I.D.H. (Yaba)	112	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
21	C	Lagos, Yaba Asylum	3	C.G.	11,416	29,146	40,562	634	494	1,128	16	8	16	2	2	1
22	C	Lagos, Ebute Metta	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
23	C	African Dispensary	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
24	C	Mamfe	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
25	B	Obubra	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
26	D	Opobo	—	N.A.	—	—	—	—	—	—	—	—	—	—	—	—
27	C	Oshogbo	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
28	C	Owerri	—	N.A.	—	—	—	—	—	—	—	—	—	—	—	—
29	B	Port Harcourt	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
30	C	Sapele	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
31	C	Umuahia	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
32	B	Victoria	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
33	B	Warri	—	C.G.	—	—	—	—	—	—	—	—	—	—	—	—
1,892	143	1,724	21,253	8,911	30,164	184,517	327,653	1,941	542,334	134	19,389	8,131	11,258	134	19,389	60

B.—NATIVE ADMINISTRATION DISPENSARY SYSTEM.

243. At the close of the year there were some 300 Native Administration dispensaries in existence. The following is a list of the thirty-three new Native Administration dispensaries which were opened during the year in the Southern and Northern Provinces.

SOUTHERN PROVINCES.

Benin Province.—Nsukwa.

Calabar Province.—Adiasim, Abak, Eastern Nsit, Ikotubo, Oron and Okobo.

Ijebu Province.—Abigi.

Ogoja Province.—Ugep and Nkalago.

Ondo Province.—Odigbo and Araromi.

Onitsha Province.—Akwegbe and Enugu Ezeke.

Owerri Province.—Rumuji, Nsulu and Akokwa.

Oyo Province.—Lalupon.

Warri Province.—Sagbama.

NORTHERN PROVINCES.

Adamawa Province.—Mubi.

Bauchi Province.—Biliri, Ningi and Jamari.

Bornu Province.—Mongunu.

Kabba Province.—Ajaokuta.

Plateau Province.—Kwabzak and Gidan-Lifidi.

Sokoto Province.—Sokoto town and Laka.

Zaria Province.—Katab, Zuntun, Soba, Makarfi and Kara.

244. The following table indicates the main diseases treated at the Native Administration dispensaries during 1936.

Diseases.			Northern Provinces.	Southern Provinces.	Grand Total.
1. Relapsing fever	...	...	125	48	173
2. Malaria ...	...	...	11,219	45,873	57,092
3. Smallpox	...	...	939	39	978
4. Chicken-pox	...	...	371	715	1,086
5. Influenza	...	...	376	605	981
6. Trypanosomiasis	...	...	1,512	377	1,889
7. Cerebro spinal meningitis	...	...	56	19	75
8. Dysentery	...	...	3,652	7,136	10,788
9. Leprosy ...	...	...	1,331	1,495	2,826
10. Yaws ...	...	...	34,261	49,081	83,342
11. Syphilis...	...	...	26,386	6,285	32,671
12. Conjunctivitis	...	...	8,853	12,298	21,151
13. Other eye diseases	...	...	7,614	6,073	13,687
14. Otitis Media	...	...	3,671	9,648	13,319
15. Other diseases of ear	...	...	1,463	5,991	7,454
16. Cough ...	...	...	20,327	31,987	52,314
Carried forward ...			122,156	177,670	299,826

Diseases.		Northern Provinces.	Southern Provinces.	Grand Total.
Brought forward ...	...	122,156	177,670	299,826
17. Pneumonia ...	...	1,787	1,027	2,814
18. Tuberculosis of Lungs ...	...	528	480	1,008
19. Diseases of teeth and gums ...	...	4,112	15,563	19,675
20. Dyspepsia ...	...	4,891	18,080	22,971
21. Diarrhoea (infants) ...	...	1,640	5,961	7,601
22. Diarrhoea (adults) ...	...	2,320	5,642	7,962
23. Constipation ...	...	31,635	60,745	92,380
24. Haemorrhoids ...	...	381	732	1,113
25. Jaundice ...	...	1,232	2,370	3,602
26. Dropsy, Ascites ...	...	161	883	1,044
27. Hernia, inguinal ...	...	278	516	794
28. Hernia, umbilical ...	...	45	238	283
29. Taenia ...	...	19,055	4,556	23,611
30. Ascaris ...	...	2,463	49,392	51,855
31. Guinea Worm ...	...	5,368	2,966	8,334
32. Arthritis ...	...	3,171	8,887	12,058
33. Chronic Rheumatism ...	...	23,093	49,436	72,529
34. Gonorrhoea ...	...	8,630	12,209	20,839
35. Orchitis & Epididymitis ...	...	398	288	686
36. Hydrocele ...	...	71	86	157
37. Leucorrhoea ...	...	54	666	720
38. Abortion ...	...	35	180	215
39. Boil ...	...	5,471	6,048	11,519
40. Abscess ...	...	5,907	8,716	14,623
41. Ulcer ...	...	32,666	81,024	113,690
42. Scabies, Craw craw ...	...	21,000	49,768	70,768
43. Other skin diseases ...	...	9,063	19,358	28,421
44. Lymphadenitis, Bubo ...	...	1,529	2,807	4,336
45. Elephantiasis ...	...	63	236	299
46. Chigoes ...	...	657	605	1,262
47. Snake bite ...	...	189	549	738
48. Scorpion-sting ...	...	395	306	701
49. Burns ...	...	2,269	3,863	6,132
50. Wounds and Injuries ...	...	22,533	41,705	64,238
51. Fractures ...	...	260	1,187	1,447
52. Tumours ...	...	160	1,096	1,256
53. Paralysis ...	...	30	269	299
54. Mania ...	...	20	17	37
55. Poisoning, native medicines ...	...	6	122	128
56. Poisoning, Juju obsessions ...	...	6	17	23
57. Fits, Epilepsy ...	...	92	387	479
58. Tetanus...	...	168	111	279
59. Schistosomiasis ...	...	830	1	831
60. Sore throat ...	...	1,501	215	1,716
61. Ankylostomiasis ...	...	3,012	68	3,080
62. Pleurodynia ...	...	1,053	1,230	2,283
63. Lumbago ...	...	9,192	787	9,979
64. Headache ...	...	7,609	1,172	8,781
65. Debility...	...	112	416	528
66. Mumps ...	...	9	4	13
67. Vaccinations ...	...	884	202	1,086
68. Circumcisions ...	...	...	6	6
69. Chancre ...	...	...	54	54
70. Whitlow ...	...	4	246	250
71. Urticaria ...	...	...	20	20
72. Pediculosis ...	...	...	22	22
73. Dermatitis ...	...	...	23	23
74. Otorrhœa ...	...	...	21	21
75. Dislocation ...	...	...	7	7
76. Normal Labour ...	...	...	237	237
77. Insect Bite ...	...	...	166	166
78. Other Diseases ...	...	686	449	1,135
79. Anaemia ...	...	3	3,094	3,097
80. Goitre ...	...	746	...	746
Total	...	361,629	645,204	1,006,833

C.—MEDICAL WORK OF RELIGIOUS MISSIONS.

245. The following table has been compiled from information kindly supplied by Mission Superintendents:—

Mission.	No. of Stations performing Medical work.	No. of Doctors.	No. holding Missionary Permits.	NATURE OF WORK.					Cases Treated.	Total Attendances.
				Hospitals.	Dispensaries.	Leprosy.	Maternity and Infant Welfare.			
NORTHERN PROVINCES.										
Sudan Interior Mission ...	36	2	65	1	36	5	8	20,044	157,332	
Sudan United Mission ...	30	1	...	1	24	1	5	26,054	186,296	
Dutch Reformed Church Mission	6	2	13	2	4	1	60	16,024	185,339	
Christian Mission in Many Lands	3	...	2	...	3	1	...	14,974	22,461	
Church of the Brethren Mission ...	3	3	3	2	3	1	1	5,639	115,028	
C.M.S. Hospital, Zaria ...	3	1	3	1	2	1	3	8,341	52,445	
	<u>81</u>			<u>7</u>	<u>72</u>		<u>77</u>			
SOUTHERN PROVINCES.										
Methodist Missionary Society, Lagos	6	3	...	1	5	1	5	13,867	56,836	
Church of Scotland	6	4	4	4	8	2	2	24,214	33,626	
Basel Mission	12	...	19	...	4	...	4	7,240	101,450	
Church Missionary Society ...	13	4	3	1	4	1	15	21,422	64,704	
Amachara Medical Mission ...	1	1	1	1	...	...	...	724	22,267
Wesley Guild Hospital, Ilesha	3	2	...	1	2	1	1	7,329	38,202	
Roman Catholic Mission, Abeokuta	1	1	2	1	...	1	1	3,438	28,896	
Methodist Missionary Society, Eastern Nigeria District ...	<u>7</u>	1	8	<u>5</u>	<u>2</u>	...	<u>5</u>	<u>47,197</u>	78,764	
	<u>49</u>			<u>14</u>	<u>72</u>		<u>77</u>	<u>125,431</u>		
Totals	130	25	123	21	97	16	116	216,507	1,143,646	

D.—DENTAL REPORT.

246. Of the two Dental Surgeons one, Mr. Pearson, was on duty for only two months of the year. During this period he was stationed in Lagos and the following table sets out the work performed.

MR. PEARSON—LAGOS (Two MONTHS).

	European Officers.	African Officials wives and children.	School children.
Attendances for treatment ...	70	112	60
Fillings	65	17	10
Temporary fillings and dressings	27	17	8
Extractions	20	95	56
Root treatment	5	3	—
Scalings	58	90	37
Local Anæsthetics	20	95	56

247. There was a noticeable increase in the proportion of African officials and their wives and children, attending for treatment. Most of the school children who came to the clinic required only extractions, owing to the advanced state of dental caries.

248. Mr. Cunningham was on duty for the first ten months of the year and during this period visited Lagos in addition to his usual stations in the Northern Provinces. His work is summarised in the following table.

MR. CUNNINGHAM (TEN MONTHS).

Place and number of days.			Fillings.	Dressings.	Extractions.	Sealings.	Root Treatments.	Repairs to Dentures.	Partial Dentures.	Full Dentures.	General Anesthetics.	Attendances for treatment.
KADUNA. 143 days.	Europeans	...	216	101	65	82	14	17	2	...	8	406
	Africans	...	25	15	106	7	1	2	13	4	2	147
	Totals	...	241	116	171	89	15	19	15	4	10	553
KANO. 29 days.	Europeans	...	130	63	45	44	18	6	18	1	3	229
	Africans	...	6	10	36	9	2	2	10	...	2	78
	Totals	...	136	73	81	53	20	8	28	1	5	307
JOS. 25 days.	Europeans	...	111	22	42	29	7	14	2	2	3	186
	Africans	...	7	14	44	6	2	2	9	...	...	71
	Totals	...	118	36	86	35	9	16	11	2	3	257
LAGOS. 99 days.	Europeans	...	219	79	31	55	14	12	1	...	1	312
	Africans	...	48	35	118	14	8	1	3	...	2	198
	Totals	...	267	114	149	69	22	13	4	...	3	510

E.—SURGICAL OPERATIONS—1936.

249. The following is a summary of the surgical operations performed in Government and Native Administration hospitals during the year under review:—

MAJOR OPERATIONS.

Operation.	Number performed.	Deaths.
A. TUMOURS AND CYSTS.		
Excision, benign tumours and cysts
,, malignant tumours
Amputation of breast for malignant tumours
Exploratory laparotomy for malignant tumours
Other operations for malignant tumours
B. DISEASES OF DUCTLESS GLANDS.		
Thyroidectomy	...	53
Splenectomy	...	9
Other operations	...	—
C. DISEASES OF ORGANS OF VISION.		
For entropion or ectropion	...	58
Iridectomy	...	30
For Cataract:—		
(a) Needling	...	27
(b) Extraction	...	87
Enucleation of globe	...	31
Other operations	...	88
Carried forward	...	1,546
		16

MAJOR OPERATIONS—*continued.*

Operation.						Number performed.	Deaths.
Brought forward	...	...	...	...	...	1,546	16
D. DISEASES OF THE AUDITORY SYSTEM.							
Mastoid operations	...	...	...	...	...	12	3
Other operations	...	...	...	...	...	25	—
E. DISEASES OF CIRCULATORY SYSTEM.							
For aneurysm	...	...	...	...	...	2	—
For haemorrhoids	...	...	...	...	...	135	—
For varicose veins	...	...	...	...	...	8	—
For varicocele	...	...	...	...	...	16	1
For gangrene	...	...	...	...	...	24	2
Other operations	...	...	...	...	...	6	1
F. DISEASES OF LYMPHATIC SYSTEM.							
Excision of glands	...	...	...	...	...	267	—
Curettage or drainage	...	...	...	...	...	286	—
For elephantiasis:—							
(a) Amputation of Scrotum	...	...	...	...	...	487	7
(b) Amputation of other parts	...	...	...	...	...	74	1
(c) Kondoleon or similar operations	...	...	...	...	...	7	—
G. DISEASES OF NASAL PASSAGE.							
Turbinectomy	...	...	...	...	...	1	—
Removal of polyp	...	...	...	...	...	11	—
Antrotomy	...	...	...	...	...	3	—
Other operations	...	...	...	...	...	6	—
H. DISEASES OF ORGANS OF RESPIRATION.							
Tracheotomy	...	...	...	...	...	7	—
For empyema	...	...	...	...	...	34	4
I. DISEASES OF DIGESTIVE TRACT.							
Curettage for adenoids	...	...	...	...	...	14	—
Tonsilectomy	...	...	...	...	...	24	—
For gastric or duodenal ulcer:—							
(a) Suture for perforation	...	...	...	...	...	7	6
(b) Gastro-enterostomy	...	...	...	...	...	23	1
(c) Partial gastrectomy	...	...	...	...	...	—	—
Appendicectomy	...	...	...	...	...	102	4
Appendix abscess, drainage	...	...	...	...	...	24	1
Caecostomy	...	...	...	...	...	1	—
Enterostomy or colostomy	...	...	...	...	...	11	4
Enterectomy	...	...	...	...	...	14	3
Radical cure of hernia	...	...	...	...	...	3,346	44
For strangulated hernia	...	...	...	...	...	187	43
For fistula in ano	...	...	...	...	...	101	—
For ischio-rectal abscess	...	...	...	...	...	29	1
Exploratory laparotomy	...	...	...	...	...	66	15
Other operations	...	...	...	...	...	96	9
J. DISEASES OF LIVER AND BILIARY PASSAGES.							
For abscess of liver:—							
(a) Aspiration	...	...	...	...	...	38	2
(b) Drainage	...	...	...	...	...	37	2
Cholecystotomy or cholecystostomy	...	...	...	...	...	5	—
Other operations	...	...	...	...	...	16	4
Carried forward	...	...	...	...	...	7,098	174

MAJOR OPERATIONS—*continued.*

Operation.						Number performed.	Deaths.
Brought forward	...	...	...	...	...	7,098	174
K. DISEASES OF MALE GENITO-URINARY SYSTEM.							
For vesical or ureteral calculus	...	...	...	...	...	24	—
Cystostomy	...	...	...	...	...	90	9
Prostatectomy	...	...	...	...	...	32	3
Dilatation of stricture of urethra	...	...	...	...	...	960	2
Urethrotomy	...	...	...	...	...	135	5
Circumcision	...	...	...	...	...	2,462	—
Orchidectomy	...	...	...	...	...	47	—
For undescended testis	...	...	...	...	...	43	—
Radical cure of hydrocele	...	...	...	...	...	961	2
Other operations	...	...	...	...	...	129	5
L. DISEASES OF FEMALE GENITO-URINARY SYSTEM.							
Hysterectomy	...	...	...	...	...	51	6
Encleation of uterine fibroids	...	...	...	...	...	31	4
Hysteropexy	...	...	...	...	...	78	1
Curettage for endometritis	...	...	...	...	...	318	—
For recto-vesical or recto-vaginal fistulae	...	...	...	...	...	79	2
Perineorrhaphy	...	...	...	...	...	30	—
Other operations	...	...	...	...	...	8	1
M. OBSTETRICAL OPERATIONS.							
For abortion	...	...	...	...	...	45	2
For ectopic gestation	...	...	...	...	...	7	1
Forceps extraction	...	...	...	...	...	102	14
Podalic version	...	...	...	...	...	18	3
Craniotomy	...	...	...	...	...	24	6
Caesarian section	...	...	...	...	...	25	6
For retained placenta	...	...	...	...	...	82	9
Other operations	...	...	...	...	...	101	4
N. AFFECTION OF SKIN AND SUBCUTANEOUS TISSUES.							
Carbuncle	...	...	...	...	...	23	—
For ulcer:	—						
(a) Curettage	...	...	...	...	...	694	1
(b) Excision	...	...	...	...	...	199	—
(c) Skin grafting	...	...	...	...	...	328	—
(d) Amputations	...	...	...	...	...	25	3
O. DISEASES OF BONES AND JOINTS							
Sequestrotomy	...	...	...	...	...	331	4
Osteotomy	...	...	...	...	...	84	—
Arthrotomy	...	...	...	...	...	28	—
Excision of joints	...	...	...	...	...	13	—
Amputation	...	...	...	...	...	122	1
Other operations	...	...	...	...	...	192	—
P. DISEASES OF OTHER ORGANS OF LOCOMOTION.							
For suppurative teno-synovitis	...	...	...	...	...	26	—
For ganglion	...	...	...	...	...	83	—
For deep muscular abscess	...	...	...	...	...	640	2
Other operations	...	...	...	...	...	70	—
Q. CONGENITAL MALFORMATION.							
Conjoined Twins—Separation of	...	...	...	...	...	2	—
Amputation of toe for Polydactylism	...	...	...	...	...	5	—
Excision Supernumerary digits	...	...	...	...	...	11	—
Malformation of knee	...	...	...	...	...	1	—
Talfa Equino	...	...	...	...	...	2	—
Club Feet	...	...	...	...	...	3	—
Spondylitis	...	...	...	...	...	1	—
Hare Lip	...	...	...	...	...	1	—
Imperforate Anus	...	...	...	...	...	3	—
Imperforate Vagina	...	...	...	...	...	1	—
Carried forward	...	...	...	...	...	15,868	270

MAJOR OPERATIONS—*continued.*

Operation.	...	...	...	Number performed.	Deaths.
Brought forward	...	...	...	15,868	270
R. INJURIES.					
Suture and repair of extensive wounds	...	...	...	590	17
Amputation	...	...	...	93	10
Plating of fractures	...	...	...	38	1
Extraction of foreign bodies	...	...	...	172	3
Trephining	...	...	...	19	—
Nerve or tendon suture	...	...	...	23	—
Other operations	...	...	...	190	—
S. OPERATION NOT CLASSIFIED ABOVE.					
Contraction of mouth due to leprosy	...	...	...	1	—
Operation for widening oval aperture	...	...	...	1	—
Colpotomy	...	...	...	1	—
Lumbar Sympathectomy	...	...	...	1	—
Excision of Hymen	...	...	...	1	—
Oophorectomy	...	...	...	2	—
Vesico-vaginal fistula	...	...	...	1	—
Ascites-Tapping	...	...	...	21	—
Gross Total Major operations				17,021	301

MINOR OPERATIONS.

Operation.	...	...	Number performed.	Deaths.
Incision of Abscess	...	...	6,101	2
Removal of Superficial Tumours	...	...	304	—
Extraction of teeth	...	...	2,370	—
Repair of minor injuries	...	...	1,515	—
Other minor operations	...	...	2,098	2
Total Minor operations				12,388
				4

F.—X-RAY DEPARTMENTS.

250. The Government African Hospitals at Lagos, Kaduna, Calabar and Port Harcourt, and the Kano Native Administration City Hospital, are provided with X-ray plants. All the installations have been kept in working order but several of them require considerable expenditure on the replacement of obsolete parts. Experienced European radiographers are in charge of the plants, except at Kano where a Nursing Sister, who has had special training, does most of the work.

251. At Lagos, X-ray examinations were made of 1,159 persons. The Port Harcourt X-ray Department was opened in June, 1936, and during the latter half of the year 240 X-ray photographs were taken and in addition there were some 1,500 attendances for ultra-violet irradiation of chronic ulcers, 200 for medical diathermy and a number for electro-massage and re-education exercises.

VII.—PRISONS AND ASYLUMS.

252. The following figures show the general health and the death rate of prisoners in Government gaols during the year, contrasted with figures for the previous two years:—

	Northern Provinces.			Southern Provinces.		
	1934.	1935.	1936.	1934.	1935.	1936.
Average daily number in Prison	193	566	699	7031·51	6,366	6330·24
Total number on sick list	187	350	310	27,268	24,100	21,003
Total number of days on sick list	2,073	3,120	3,959	47,970	38,059	38,384
Average daily sick ..	5·68	8·55	10·74	75·25	66·02	57·38
Total number of deaths	6	11	17	110	88	76
Death rate per thousand	12·1	19·4	24·3	15·6	13·8	12

253. The following table shows the causes of deaths among prisoners:—

Northern Provinces.		Southern Provinces.			
Heart Failure ...	2	Brought forward	...	21	
Septicaemia ...	1	Acute mental condition	...	1	
Broncho Pneumonia ...	1	Paraplegia	...	1	
Laceration of the Spinal Cord	1	Saprexia	...	1	
Asthenia ...	6	Chronic Meningitis	...	1	
Toxaemia ...	1	Acute Mania	...	3	
Hemiplegia ...	1	Lobar Pneumonia	...	22	
Peritonitis ...	1	Oedema of the Glottis	...	1	
Laceration of the lungs ...	1	Appendix Abscess	...	1	
Cerebral Haemorrhage ...	1	Inguinal Hernia	...	2	
Asphyxia ...	1	Ulceration of the bowel	...	1	
Total ...	17	Gastro-enteritis	...	1	
	—	Diarrhoea	...	1	
	—	Uraemia	...	1	
	—	Chronic Nephritis	...	1	
	—	Retention of Urine	...	1	
	—	Senile degeneration	...	1	
	—	Murder	...	2	
	—	Obstructed labour	...	1	
	—	General debility	...	1	
	—	Asthenia	...	1	
	—	Myocarditis	...	2	
	—	Rupture of the Aneurysm	...	1	
	—	Aortic Regurgitation	...	1	
	—	Mitral disease	...	1	
	—	Coronary embolism	...	1	
	—	Endocarditis	...	1	
	—	Natural causes	...	3	
Carried forward	21	Total	...	76	
	—		—	—	—

254. *Lunacy.*—The conditions under which lunatics, both civil and criminal, are accommodated and cared for are receiving examination.

In June, 1936, Dr. Cunningham-Brown, C.B.E., formerly one of His Majesty's Commissioners of the Board of Control for England and Wales, visited Nigeria as part of his tour to advise and report on the care and treatment of lunatics in the West African Colonies, and the whole position of lunacy in Nigeria will be reviewed after his report has been received and considered.

VIII.—METEOROLOGY.

The comparative monthly Rainfall for Lagos, from 1926–1936 was as follows:—

Month.	YEAR.											
	1926.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.	
January	2.49	1.77	.02	1.38	0.94	0.02	4.93	0.20	...	0.93
February	3.00	2.35	2.22	1.46	2.21	1.47	0.44	2.05	1.24	1.54
March	2.74	2.78	8.20	1.73	3.27	5.89	2.61	4.67	4.75	5.78
April	12.76	3.37	6.96	7.04	5.01	7.16	3.80	3.95	5.73	6.27
May	13.69	8.19	15.33	11.34	8.61	8.87	11.34	6.61	5.38	12.08
June	13.06	7.08	21.05	24.79	13.28	17.73	14.10	14.86	15.68	21.18
July	10.07	8.57	2.53	19.93	18.40	17.81	0.86	19.49	14.49	0.16
August	0.26	0.25	2.05	.81	.66	2.10	3.02	1.51	7.91	0.42
September	11.05	3.04	5.60	3.11	2.67	12.54	4.11	5.49	4.32	1.77
October	3.79	13.33	12.67	6.03	12.46	5.87	5.16	6.01	13.45	6.08
November	5.47	2.38	.54	4.10	1.88	2.24	2.63	5.31	1.17	5.33
December	0.07	1.17	.13	6.02	1.69	0.93	...	0.97	4.72	0.43
Total	75.97	55.00	79.05	86.38	71.52	83.55	48.09	75.85	77.80	78.71
												62.28

METEOROLOGICAL RETURNS FOR 1936.

STATION.	Absolute Shade Max.	Absolute Shade Min.	Average Max.	Average Min.	Relative Humidity.	Rainfall inches.
Calabar	98	55	91.6	64.4	93.3	121.66
Enugu	98	60	92.5	62.4	79.7	52.01
Ibadan	99	56	92.08	63.2	92.1	39.39
Ilorin	100	49	85.1	64.3	83.7	40.13
Kaduna	101	46	96	59.6	76.2	46.21
Kano	107	48	98	60	55.8	38.56
Lagos	93	68	88.4	71.1	86.5	62.28
Lokoja	99	59	93.1	67.5	78.08	28.22
Maiduguri	110	49	101.08	60.8	52.2	31.74
Yola	107	50	98.9	64.5	70.08	43.18

IX.—SCIENTIFIC.

The following abridged reports appear as appendices:—

- A.—Report upon Laboratory Service.
- B.—Report upon Tsetse Investigation and Sleeping Sickness work.
- C.—Report upon Medical School.
- D.—Notes relating to “ Lines ”.

R. BRIERCLIFFE,
Director of Medical Services.

RETURNS.

TABLE I.

AUTHORISED ESTABLISHMENT OF THE DEPARTMENT.

(a) EUROPEAN STAFF.

Director of Medical Services.

Medical Service.

Deputy Director of Medical Service.

Assistant Director of Medical Service.

2 Specialists.

8 Senior Medical Officers (1 vacant during the year).

77 Medical Officers (including 9 attached to Sleeping Sickness Service).

2 Lady Medical Officers.

1 Superintendent Medical Schools.

1 Superintendent School of Pharmacy.

2 Government Dentists.

9 Senior Nursing Sisters (1 vacant during the year).

53 Nursing Sisters (2 vacant during the year).

2 Assistant Radiographers and Storekeepers, Grade I.

2 Assistant Radiographers and Storekeepers, Grade II.

Health Service.

Deputy Director of Health Service.

Assistant Director of Health Service (suspended as an economy measure).

4 Senior Health Officers.

9 Medical Officers of Health (2 vacant during the year).

1 Chief Sanitary Superintendent.

8 Sanitary Superintendents, Grade I (1 vacant during the year).

27 Sanitary Superintendents, Grade II (1 vacant during the year).

Laboratory Service.

1 Senior Pathologist.

5 Pathologists (1 vacant during the year).

1 Senior Technical Assistant.

6 Technical Assistants (including 1 attached to Tsetse Investigation).

Tsetse Investigation: Sleeping Sickness Service.

Deputy Director of Sleeping Sickness Service.

9 Medical Officers.

1 Entomologist.

1 Technical Assistant.

Clerical and Storekeeping Staff.

1 Accountant.

1 Chief Dispenser Storekeeper.

(b) AFRICAN STAFF.

Medical Service.

10 Medical Officers.

6 Junior Medical Officers.

1 Chief Dispenser (vacant).

6 Senior Dispensers.

20 First-class Dispensers.

90 Second-class Dispensers.

13 Third-class Dispensers.

- 9 Medical Students.
- 26 Medical Assistants (reduced to 17 during the year).
- 8 Senior Nurses.
- 31 Charge Nurses.
- 74 First-class Nurses.
- 246 Second-class Nurses.
- 135 Nurses-in-Training.
 - 4 First-class Midwives (reduced to 1 during the year).
 - 12 Second-class Midwives (reduced to 6 during the year).
 - 15 Pupil Midwives (reduced to 14 during the year).
 - 1 Charge Attendant Lunatic Asylum.
- 24 Lunatic Asylum Attendants.
 - 3 First-class Wardens.
 - 3 Second-class Wardens.
 - 9 Assistant Wardens.
 - 6 Leper Asylum Attendants at Government Hospitals.

Health Service.

- 1 Senior Sanitary Inspector.
- 8 First-class Sanitary Inspectors.
- 35 Second-class Sanitary Inspectors (reduced to 34 during the year).
- 44 Third-class Sanitary Inspectors.
- 8 Sanitary Inspectors-in-Training.
- 36 Sub-Inspectors of Sanitation.
- 64 Vaccinators.
 - 1 Registrar of Vital Statistics.
 - 2 Deputy Registrars of Vital Statistics.

Laboratory Service.

- 3 First-class Laboratory Attendants.
- 5 Second-class Laboratory Attendants.
- 13 Third-class Laboratory Attendants.
- 2 Laboratory Attendants-in-Training.

Tsetse Investigation and Sleeping Sickness Staff.

- 1 First-class Clerk.
- 2 Second-class Clerks.
- 1 Second-class Dispenser.
- 2 First-class Nurses.
- 5 Second-class Nurses.
- 1 First-class Laboratory Attendant.
- 2 Third-class Laboratory Attendants.

Clerical and Storekeeping Staff.

- 1 Assistant Accountant (holder retired on pension in November).
- 1 Chief Clerk.
- 4 Assistant Chief Clerks.
- 12 First-class Clerks (including one for Tsetse Investigation).
- 41 Second-class Clerks (reduced to 39 during the year).
- 1 Chief Storekeeper.
- 2 Assistant Chief Storekeepers.
- 3 First-class Storekeepers.
- 4 Second-class Storekeepers.

TABLE IV.
RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936.

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.					OUT-PATIENTS.		
		TOTAL.		Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.
		Admissions.	Male.						
<i>I.—Infectious and Parasitic Diseases.</i>									
1a. Typhoid fever	1	3	...	4	...	...	...
2a. Paratyphoid A.	3	...	...	3	...	1	...
2b. Paratyphoid B.
2c. Enteric fever, type not defined	1	...	...	1	...	...	...
3. Typhus fever
4. Relapsing fever
5. Undulant fever
Smallpox—									
6a. Variola major
6b. Variola minor
7. Measles	2	...	...	2	3	3	...
8. Scarlet fever
9. Whooping cough	1	...
10. Diphtheria
11. Influenza	17	1	...	18	50	9	...
12. Cholera	1	...	...
13a. Amœbic dysentery	16	7	...	23	28	6	...
13b. Bacillary dysentery	6	3	...	9	4	2	...
13c. Dysentery—type unspecified	8	...	...	8	1	4	...
14a. Bubonic plague
14b. Pneumonic plague
14c. Septicaemic plague
15. Erysipelas
16. Acute poliomyelitis
17. Encephalitis lethargica
18. Cerebro-spinal fever
19. Glanders
20. Anthrax
21. Rabies
22. Tetanus
Tuberculosis of—									
23. Respiratory system	3	1	1	4	...	2	...
24. Central nervous system
25. Intestines and peritoneum
26. Vertebral column
27. Other bones and joints
28. Skin and subcutaneous tissues
29. Lymphatic system
30. Genito-urinary system
31. Other organs
32. Disseminated tuberculosis
33. Leprosy
34a. Primary syphilis	19	...
34b. Secondary syphilis	3	...	...	3	...	10	...
34c. Tertiary syphilis	3	...	...	3	1	5	...
34d. Congenital syphilis
35a. Gonorrhœa	2	...	...	2	...	121	...
35b. Gonorrhœa with complications	5	1	...	6	1	4	...
35c. Gonorrhœal arthritis	1	...	...	1	...	...	...
35d. Gonorrhœal ophthalmia
35f. Soft chancre	23	...
35g. Venereal bubo	2	...	...	2	1	2	...
Carried forward	73	16	1	89	4	274	24

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—continued.

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.	
		Admissions.	Male.							
Brought forward	...	73	16	1	89	4	274	24	...	
I.—Infectious and Parasitic Diseases—contd.										
35h. Other venereal diseases	5	...	...	...
36a. Septicæmia	...	2	...	...	2	1	...	...	...	...
36b. Pyæmia	...	1	...	1	1	...	...	...	...	...
36c. Gas gangrene
37. Yellow fever	...	2	1	2	3	...	1	...	1	1
38a. Tertian malaria (<i>P. vivax</i>)	...	3	...	...	3	...	2	1	...	...
38b. Quartan malaria (<i>P. malariae</i>)	...	1	...	...	1	1	1	...	...	...
38c. Subtertian malaria (<i>P. falciparum</i>)	...	3	163	46	3	212	456	123	1	1
38d. Malaria—type unspecified	...	3	42	14	...	59	115	22	...	...
38e. Blackwater fever	...	5	...	1	5	2	4	2	...	...
39a. Leishmaniasis
39b. Spirochætosis ictero-hæmorrhagica
39c. Trypanosomiasis	2	1	...	...
39d. Yaws
39e. Other protozoal diseases	1	...	...
40. Ankylostomiasis	...	2	...	...	...	2	1	3	3	...
41. Hydatid cysts
42a. Ascariasis	11	8	...	...
42b. Dracontiasis (guinea-worm)
42c1. Filariasis (<i> bancrofti</i>)	2	...	...	...
42c2. Filariasis (<i>loa-loa</i>)	...	4	1	...	5	...	19	5	...	...
42c3. Onchocerciasis
42d. Schistosomiasis (<i>haematumobium</i>)	1	...	...	...
42e. Schistosomiasis (<i>mansonii</i>)	...	2	...	...	2	...	...	...	...	...
42f. Tæniasis (tape-worm)	...	2	...	...	2	...	15	1	...	...
42g. Other helminthiasis (<i>oxyuris</i> , &c.)	...	1	1	...	2	...	3	...	...	...
43a. Actinomycosis
43b. Other mycoses (madura-foot, &c.)
44a. Sequelæ of vaccination	8	6	...	...
44b. German measles	...	6	1	...	7	...	25	12	...	...
44c. Chicken-pox
44d. Mumps
44e. Dengue	...	6	3	...	9	...	17	7	...	...
44f. Glandular fever	14	5	...	...
44g. Other infectious and parasitic diseases	1	...	1	...	...	1	...	...
II.—Cancer and other Tumours.										
Cancer of :—										
45. Buccal cavity and pharynx
46a. Oesophagus
46b. Stomach and duodenum
46c. Rectum
46d. Liver	1	...	...	...
46e. Pancreas
46f. Other digestive organs
47. Respiratory organs
48. Uterus
49. Other female genital organs
Carried forward	...	6	315	84	8	405	11	980	221	2

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—*continued.*

Diseases	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.		
		Admissions.	Deaths.							
Male.	Female.									
Brought forward	...	6	315	84	8	405	11	980	221	2
II.—Cancer and other Tumours										
—contd.										
Cancer of :—										
50. Breast	1	...
51. Male genito-urinary organs
52. Skin
53. Other organs
54a. Dermoid cyst
54b. Fibroid, uterine	1	...
54c. Lipoma	1	1	...
54d. Other non-malignant tumours	1	...	...	1	...	37	6	...
55. Tumours of undetermined nature	1	...	...
III.—Rheumatism, Diseases of Nutrition and of Endocrine Glands and other General Diseases.										
56. Rheumatic fever
57a. Chronic rheumatism	10	1	...	11	1	111	19	...
57b. Rheumatoid arthritis, Osteo- arthritis, &c.	2	...	...	2	...	9	1	...
58. Gout	8	...	...
59. Diabetes mellitus	3	...	...
60a. Scurvy (<i>hypovitaminosis C</i>)
60b. Hypovitaminosis A
61a. Beri-beri (<i>hypovitaminosis B₁</i>)
61b. Epidemic dropsy (toxaemic)
62. Pellagra (<i>hypovitaminosis B₂</i>)
63. Rickets (<i>hypovitaminosis D</i>)
65. Diseases of the pituitary gland
66a. Simple goitre	1	...
66b. Exophthalmic goitre
66c. Other diseases of thyroid and parathyroids	2	...
67. Diseases of the thymus
68. Diseases of the adrenals
69. Other general diseases	3	...	...
IV.—Diseases of the Blood and Blood Forming Organs.										
70a. Purpura
70b. Hæmophilia
71a. Pernicious anaemia
71b. Anæmia—other types	...	1	4	6	...	11	...	90	40	...
72a. Leukæmia
72b. Lymphadenoma
73. Diseases of the spleen (splenomegaly, &c.)	1	...	...	1	...	4	...	...
74. Other diseases of the blood and blood forming organs	1	...	...	1	...	1	...	...
Carried forward	...	7	334	91	8	432	12	1,248	293	2

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.		
		Admissions.	Deaths.							
Brought forward	...	7	334	91	8	432	12	1,248	293	2
<i>V.—Chronic Poisoning.</i>										
75. Alcoholism (acute or chronic)	...		3	...	...	3	...	2	...	...
76. Chronic poisoning by other organic substances (cocaine, morphine, &c.)
77. Chronic poisoning by mineral substances
<i>VI.—Diseases of the Nervous System and Sense Organs.</i>										
78. Encephalitis, cerebral abscess, etc. (not including encephalitis lethargica; <i>see</i> 17)	1	...	...
79. Meningitis (not including tubercular or cerebro-spinal meningitis; <i>see</i> 18)	...		1	...	1	1	...	...	...	...
80. Tabes dorsalis (Locomotor ataxy)
81. Other diseases of spinal cord (not including acute poliomyelitis; <i>see</i> 16)
82a. Cerebral haemorrhage. Apoplexy
82b. Cerebral embolism
82c. Cerebral thrombosis	1	...	...
82d. Hemiplegia and other paralysis of unstated origin	1	...	...
83. General paralysis of the insane
84a. Dementia praecox	...		1	...	...	1	...	1	...	...
84b. Paranoia
84c. Other forms of insanity	1	...
85. Epilepsy	1	...	...
86. Infantile convulsions (under five years of age)
87a. Chorea
87b. Neuritis. Neuralgia	...		7	...	...	7	1	83	22	...
87c. Disseminated sclerosis
87d. Amentia
87e. Hysteria	2	...	2	...	...	4	...
87f. Psychasthenia. Neurasthenia	...		15	2	...	17	...	60	12	...
87g. Other diseases of the nervous system	...		3	3	...	6	...	23	6	...
88a. Cataract
88b. Conjunctivitis	87	19	...
88c. Ectropion. Entropion
88d. Errors of refraction	14	5	...
88e. Glaucoma
88f. Iritis	...		4	...	...	4	...	5	...	...
88g. Keratitis	2	...	...
88h. Pterygium	1	...	...
88i. Trachoma
88j. Ulcer of cornea. Staphyloma. Leukoma	...		1	...	...	1	...	1	...	...
88k. Other diseases of the eye and annexa	39	7	...
Carried forward	...	7	369	98	9	474	13	1,569	370	2

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.	
		Admissions.	Male.							
Brought forward	7	369	98	9	474	13	1,569	370	2	
VI.—Diseases of the Nervous System and Sense Organs—contd.										
89a. Otitis	...	1	2	1	...	4	181	31	...	
89b. Mastoiditis	2	...	...
89c. Other diseases of the ear	...	5	...	...	5	...	69	10	...
89d. Wax in ear	185	35	...	
VII.—Diseases of the Circulatory System.										
90. Pericarditis	...	1	...	...	1	...	...	...	...
91. Acute endocarditis	
92. Chronic endocarditis. Valvular heart disease	...	5	2	...	7	1	9	4	...	
93. Myocardial degeneration. Chronic myocarditis	...	4	...	...	4	...	1	1	...
94. Diseases of the coronary arteries. Angina pectoris. Coronary thrombosis, &c.	2	...	...
95a. Disordered action of the heart	...	6	...	...	6	...	7	2	...
95b. Other diseases of the heart	4	2	...	
96. Aneurysm	
97. Arterio-sclerosis	1	...	...
98. Gangrene	
99. Other diseases of the arteries	1	...	1	...	...	...	...
100a. Hæmorrhoids	...	9	...	...	9	1	57	8	...
100b. Varix. Varicose veins. Varicocele	7	1	...	
100c. Phlebitis	5	1	...	
100d. Other diseases of veins	2	...	
101a. Bubo (non-specific)	...	4	...	...	4	...	4	...	...
101b. Adenitis and other diseases of the lymphatic system	...	5	...	...	5	...	33	3	...
102. Abnormalities of blood pressure, hyperpiesia, &c.	...	2	1	...	3	...	1	1	...	
103a. Epistaxis	17	3	...	
103b. Other diseases of the circulatory system	...	2	...	...	2	1	...	...	...
VIII.—Diseases of the Respiratory System.										
104a. Rhinitis. Coryza	...	7	2	...	9	1	192	23	...	
104b. Other diseases of the nose	5	1	...	
104c. Diseases of the accessory nasal sinuses	...	1	...	...	1	...	1	2	...
104d. Nasal polypus	
104e. Gangosa	
105a. Laryngitis	...	3	...	...	3	...	32	6	...
105b. Other diseases of the larynx	...	1	...	...	1	...	...	...	...
106a. Acute bronchitis	...	6	...	...	6	...	94	17	...
106b. Chronic bronchitis	...	15	...	...	15	...	47	9	...
106c. Bronchiectasis	
107. Broncho-pneumonia	...	1	...	...	1	...	...	...	...
108. Lobar pneumonia	...	1	6	...	7	...	3	...	...
110a. Pleurisy	...	5	...	...	5	1	4	1	...
110b. Empyema	
Carried forward	...	9	459	105	9	573	19	2,532	533	2

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.			Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.	
		Admissions.	Male.	Female.						
Brought forward	...	9	459	105	9	573	19	2,532	533	2
VIII.—Diseases of the Respiratory System—contd.										
111a. Hypostatic congestion of lungs	1	...	...
111b. Embolism of lung
112a. Asthma	8	...	...	8	...	24	...	...
112b. Hay fever	5	1	...
113. Pulmonary emphysema	2	...	...
114a. Gangrene or abscess of lung
114b. Other diseases of the respiratory system	1	...	...	1	...	3	...	...
IX.—Diseases of the Digestive System.										
115a. Dental caries. Alveolar abscess	16	5	...	21	...	233	56	...
115b. Pyorrhœa	1	...	...	1	...	8	...	...
115c. Stomatitis	1	...	...	1	...	30	6	...
115d. Tonsilitis. Pharyngitis. Quinsy	1	20	3	1	24	...	...	179	54	1
115e. Adenoids	1	...	...	1	...	1	...	...
115f. Other diseases of the buccal cavity, pharynx, etc.	1	...	...	1	...	5	...	...
116. Diseases of the œsophagus	1	...	...	1	...	1	...	...
117a. Ulcer of the stomach	2	...	...	2	1	...	...	...
117b. Ulcer of the duodenum	7	...	...	7	...	13	...	...
118a. Gastritis	16	2	...	18	...	121	27	...
118b. Dyspepsia	19	10	...	29	1	178	52	1
118c. Other diseases of the stomach	1	2	...	3	...	11	...	...
119. Infantile diarrhoea (under two years of age)	2	...	...
120a. Sprue
120b. Colitis	8	1	...	9	...	43	9	...
120c. Gastro-enteritis	18	5	...	23	...	43	10	...
120d. Diarrhoea	...	1	20	3	...	24	...	170	28	...
121. Appendicitis	21	3	2	24	1	13	3	...
122a. Hernia	3	...	...	3	...	13	...	...
122b. Strangulated hernia
122c. Intestinal obstruction	1	...	...
123a. Constipation	1	...	...	1	...	68	19	...
123b. Diverticulitis	1	1	...
123c. Fistula in ano	4	1	...	5	...	6	1	...
123d. Ischio-rectal abscess	2	...	...	2	...	4	...	...
123e. Other diseases of the intestines	4	1	...	5	1	9	3	...
124. Cirrhosis of the liver	1	...	...
125a. Acute yellow atrophy of the liver
125b. Hepatitis	3	1	...	4	...	7	2	...
125c. Abscess of the liver	1	...	...	1	...	...	...	...
125d. Other diseases of the liver	1	...	...
126. Biliary calculi
127a. Cholecystitis	2	1	...	3	...	4	...	...
127b. Catarrhal jaundice	12	1	...	13	...	10	5	...
127c. Other diseases of the gall bladder and ducts	1	...	...	1	...	...	...	...
128. Diseases of the pancreas	1	...	1	1	...	1	...	...
129. Peritonitis
Carried forward	...	11	655	144	13	810	23	3,744	810	4

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.		
		Admissions.	Deaths.							
Brought forward	11	655	144	13	810	23	3,744	810	4	
X.—Non-Venereal Diseases of the Genito-Urinary System and Annexa.										
130. Acute nephritis	1	...	...	1	...	3	1	...	
131. Chronic nephritis	1	...	1	1	...	...	1	...	
133a. Pyelitis	3	3	...	6	...	5	9	...	
133b. Other diseases of the kidney and annexa	2	...	...	2	...	5	1	...	
134a. Calculi of the kidney and ureter	8	1	...	9	...	6	...	...
134b. Calculi of the bladder	1	1	...	
135a. Cystitis	3	6	...	9	1	33	14	...	
135b. Other diseases of the bladder	1	...	1	...	3	...	...
136a. Stricture of the urethra	7	...	...
136b. Urethral fistula	
136c. Perineal abscess	1	...	...	1	...	...	...	...
136d. Other diseases of the urethra	2	...	...	2	...	42	...	...
137a. Hypertrophy of the prostate	1	...	...
137b. Prostatitis	2	...	...	2	...	19	...	...
137c. Other diseases of the prostate	
138a. Phimosis	1	...	...	1	...	5	...	...
138b. Epididymitis. Orchitis	2	...	...	2	...	15	...	...
138c. Hydrocele	7	...	...
138d. Other non-venereal diseases of the male genital organs	1	...	...	1	...	7	...	...
138e. Granuloma venereum	
139a. Diseases of the ovary	3	...	3	...	...	...	...
139b. Salpingitis and other diseases of the Fallopian tube	4	...	
139c. Pelvic cellulitis, abscess, etc.	1	1	1	...	...	...	...
139d. Displacement of uterus	1	...	1	...	...	2	...	
139e. Dysmenorrhœa	20	...	
139f. Endometritis. Cervicitis	9	...	9	...	...	11	...	
139g. Menorrhagia	4	...	4	...	...	19	...	
139h. Mastitis. Abscess and other diseases of the breast	3	...	3	...	1	6	...	
139i. Other diseases of the female genital organs	1	...	1	...	...	28	...	
XI.—Diseases of Pregnancy, Child Birth and the Puerperal State.										
140. Post-abortive sepsis	1	1	
141a. Abortion	6	...	6	...	...	9	...	
141b. Ante-partum haemorrhage	2	...	2	...	...	3	...	
142. Ectopic gestation	
143. Hydatid mole and other accidents of pregnancy	2	...	2	...	...	6	...	
144a. Placenta prævia	
144b. Other puerperal haemorrhage	
145. Puerperal sepsis	
146. Puerperal albuminuria. Eclampsia	
147. Other toxæmias of pregnancy	2	...	2	...	...	5	...	
148a. Puerperal phlegmasia alba dolens	
Carried forward	11	682	189	15	882	24	3,904	951	5	

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—continued.

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Admissions.	Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.
		Male.	Female.							
Brought forward	11	682	189	15	882	24	3,904	951	5	
XI.—Diseases of Pregnancy, Child Birth and the Puerperal State—contd.										
148b. Puerperal embolism
149a. Difficult labour	1	...	...	1	...	...	...	...
149b. Retained placenta	1	...
149c. Other accidents of child birth
150a. Puerperal insanity
150b. Puerperal diseases of the breast
150c. Normal labour	1	...	4	...	5	...	...	...	2	...
XII.—Diseases of the Skin and Cellular Tissue.										
151. Carbuncle. Boil	1	20	2	...	23	...	214	32	...	...
152a. Cellulitis	20	...	1	20	1	110	19	...	...
152b. Acute abscess	2	9	1	...	12	...	55	5	...	...
152c. Whitlow	4	1	...	5	...	38	4	...	...
153a. Ainhum	1	2	...	...
153b. Chigoes	1	...	1	...	31	6	...	...
153c. Eczema. Dermatitis	1	12	3	...	16	1	211	39	1	...
153d. Elephantiasis
153e. Herpes	5	1	...	6	...	23	3	...	...
153f. Impetigo	11	...	...	...
153g. Keloid	1	...	...	...
153h. Myiasis	1	...	1	...	7	...	...	...
153i. Pediculosis	12	...	...	...
153j. Psoriasis	6	3	...	...
153k. Scabies	1	...	1	...	13	...	...	...
153l. Tinea	1	...	...	1	...	156	16	...	...
153m. Ulcer	5	1	...	6	...	52	3	...	...
153n. Urticaria	2	...	...	2	...	26	17	...	...
153o. Other diseases of the skin and its annexa	5	...	...	5	...	94	28	...	...
XIII.—Diseases of the Bones and Organs of Locomotion.										
154a. Osteomyelitis	1	2	...	...	3	...	...	...	...	...
154b. Periostitis	3	1	...	...
155. Other diseases of the bones	1	...	...	...
156a. Arthritis	1	...	...	1	...	19	4	...	...
156b. Synovitis	2	...	...	2	...	24	2	...	...
156c. Other diseases of joints—loose cartilage, ankylosis, &c.	1	...	...	1	...	8	2	...	...
156d. Abscess of muscle	1	1	...	...	2	...	...	...	...	...
156e. Ganglion	1	...	...	...
156f. Lumbago	3	...	...	3	1	47	10	...	...
156g. Other diseases of other organs of locomotion	21	3	...	...
XIV.—Congenital Malformations.										
157a. Hydrocephalus
157b. Spina bifida. Meningocele
Carried forward	18	777	204	16	999	27	5,089	1,153	6	

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—continued.

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.		
		Admissions.	Deaths.							
Male.	Female.									
Brought forward	18	777	204	16	999	27	5,089	1,153	6	
XIV.—Congenital Malformations— contd.										
157c. Malformations of the heart
157d. Monstrosities
157e. Cleft palate. Harelip
157f. Imperforate anus
157g. Other congenital malformations
157h. Hæmatocolpos
XV.—Diseases of Ear Infancy.										
158 Congenital debility	1	1	1	...	...	...	...	...
159 Premature birth
160 Injury at birth
161a. Icterus neonatorum
161b. Pemphigus neonatorum
161c. Other diseases peculiar to early infancy	1	1	...	2	...	1	...	...	...
XVI.—Old Age.										
162a. Senile dementia
162b. Other forms of senile decay
XVII.—Affections due to Violence.										
165a. Suicide	1	...	1	1	...	...	...	...	...
165b. Attempted suicide	1	...	...	1	...	...	...	...	...
172. Infanticide
173. Homicide
176a. Snake bite
176b. Insect bite or sting	1	2	...	3	...	41	16	...	...
177. Food poisoning	4	4	...	8	...	13	13	...	...
178. Accidental gas poisoning
179. Other acute accidental poisoning	1	...	...	1	...	1	1	...	...
181a. Burns by fire	13	...	...	...
181b. Other burns or scalds	2	...	...	2	...	7	...	...	...
182. Accidental mechanical suffocation
183. Accidental drowning
184. Accidental injury by firearms	...	1	...	...	1	...	3	...	...	...
Injuries:—										
185. By cutting or piercing instruments	1	...	...	1	...	32	1	...	...
186a. Due to falls, crushing, machinery, railways, &c.	6	1	...	7	...	63	6	...	...
186b. Due to motor accidents	5	1	...	6	...	24	2	...	...
188. By non-venomous animals...	...	2	1	...	3	...	16	5	...	...
Carried forward	18	803	215	18	1,036	27	5,303	1,197	6	

TABLE IV.—RETURN OF DISEASES AND DEATHS (EUROPEAN)
FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.		
		Admissions.	Deaths.							
Male.	Female.									
Brought forward	18	803	215	18	1,036	27	5,303	1,197	6	
XVII.— <i>Affections due to Violence—contd.</i>										
189. Hunger or thirst (starvation, privation)	1	2	...	...
191a. Heat stroke	4	...	...	...
191b. Sunstroke	1	...	...	1	5	3	...	...
192. Injuries by lightning
193. Injuries by electricity
194a. Dislocation	3	1	...	4	...	15	1	...	...
194b. Sprain	10	1	...	11	...	116	20	...	...
194c. Fracture	11	3	...	14	...	30	2	...	...
194d. Wounds and other external injuries	19	2	...	21	...	255	28	...	...
196. Wounds of war	9	1	...	10	...	...	...	...	...
198. Execution
XVIII.— <i>Ill-Defined Diseases.</i>										
200a. Asthenia	4	...	...	4	...	122	28	...	...
200b. Goundou
200c. Malingering
200d. Pyrexia of uncertain origin	3	3	...	6	...	2	...	...	...
200e. Shock	1	1	...	2	...	...	...	...	...
200f. Hyperpyrexia	4	...	4	...	5	...	...	...
Diseases not included above.										
201. Anti-rabic prophylaxis	3	...	...	3	...	25	12	...	...
210. Transferred cases already diagnosed by Medical Officer on other station
Total cases of Diseases treated ...	18	867	231	18	1,116	27	5,883	1,293	6	

212

TABLE V.

RETURN OF DISEASES AND DEATHS (NON-EUROPEAN)
FOR THE YEAR 1936.

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.					OUT-PATIENTS.		
		TOTAL.		Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.
		Admissions.	Male.						
I.—Infectious and Parasitic Diseases.									
1a. Typhoid fever	...	18	3	11	21	...	...	...	...
2a. Paratyphoid A.	...	1	...	...	1	...	...	...	...
2b. Paratyphoid B.	...	7	1	1	8	...	...	...	...
2c. Enteric fever, type not defined	...	9	...	1	9	...	...	...	...
3. Typhus fever	...	...	...	...	...	...	...	...	...
4. Relapsing fever	...	...	...	...	...	...	...	...	...
5. Undulant fever	...	...	...	...	...	...	...	...	...
Smallpox:—									
6a. Variola major	...	16	4	3	20	...	31	15	5
6b. Variola minor	...	13	2	...	15	...	40	7	...
7. Measles	2	37	14	2	53	...	173	147	...
8. Scarlet Fever	...	...	...	...	...	...	...	...	...
9. Whooping Cough	...	27	14	1	41	4	314	456	...
10. Diphtheria	...	...	...	...	...	...	...	...	...
11. Influenza	1	49	12	...	62	...	175	34	...
12. Cholera	...	...	...	...	...	...	...	...	...
13a. Amoebic dysentery	13	710	234	91	957	26	1,501	614	1
13b. Bacillary dysentery	1	47	16	13	64	...	27	20	...
13c. Dysentery—type unspecified	1	139	59	31	199	2	1,274	663	4
14a. Bubonic plague	...	...	...	...	...	...	...	...	...
14b. Pneumonic plague	...	...	...	...	...	...	...	...	...
14c. Septicæmic plague	...	...	...	...	...	...	...	...	...
15. Erysipelas	...	10	7	4	17	...	14	5	...
16. Acute poliomyelitis	...	2	...	...	2	...	4	9	...
17. Encephalitis lethargica	...	3	4	1	7	...	3	1	...
18. Cerebro-spinal fever	...	42	24	14	66	...	...	...	...
19. Glanders	...	...	...	...	...	...	...	...	...
20. Anthrax	...	1	...	...	1	...	...	...	...
21. Rabies	...	2	...	2	2	...	...	...	...
22. Tetanus	5	61	26	43	92	4	19	14	...
Tuberculosis of:—									
23. Respiratory system	34	2,241	58	148	2,333	14	299	105	8
24. Central nervous system	...	2	4	1	6	2	1	...	...
25. Intestines and peritoneum	1	16	19	14	36	2	10	4	...
26. Vertebral column	11	61	15	3	87	4	63	28	...
27. Other bones and joints	5	47	14	4	66	11	43	29	...
28. Skin and subcutaneous tissues	3	12	4	1	19	...	3	12	...
29. Lymphatic system	3	39	14	6	56	4	67	40	...
30. Genito-urinary system	...	12	4	2	16	...	...	...	...
31. Other organs	1	6	4	4	11	...	13	11	...
32. Disseminated tuberculosis	1	4	3	1	8	...	11	...	...
33. Leprosy	142	378	80	18	600	270	1,332	578	6
34a. Primary syphilis	77	1,018	723	9	1,818	145	5,524	2,148	...
34b. Secondary syphilis	82	1,238	394	7	1,714	128	2,339	770	...
34c. Tertiary syphilis	42	306	143	9	491	37	1,978	1,337	1
34d. Congenital syphilis	2	36	22	9	60	2	123	90	2
35a. Gonorrhœa	77	1,161	353	9	1,591	103	12,033	2,639	...
35b. Gonorrhœa with complications	9	177	19	6	205	4	706	68	...
35c. Gonorrhœal arthritis	13	225	28	7	266	27	441	46	...
35d. Gonorrhœal ophthalmia	5	73	27	...	105	2	204	138	...
35f. Soft chancre	41	257	16	...	314	19	2,170	97	...
35g. Venereal bubo	11	119	18	3	148	3	594	90	...
35h. Other venereal diseases	1	6	4	...	11	...	138	72	...
36a. Septicaemia	1	28	12	23	41	1	13	14	4
36b. Pyæmia	...	3	...	2	3	...	...	...	...
36c. Gas gangrene	...	...	...	...	...	...	...	...	...
Carried forward	585	8,659	2,398	504	11,642	814	31,680	10,301	31

TABLE V.—RETURN OF DISEASES AND DEATHS (NON-EUROPEAN)
FOR THE YEAR 1936—continued.

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.					OUT-PATIENTS.		
		TOTAL.		Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.
		Admissions.	Male.						
Brought forward	585	8,659	2,398	504	11,642	814	31,680	10,301	31
I.—Infectious and Parasitic Diseases —contd.									
37. Yellow fever... ... ...	...	...	...	...	...	...	...	...	...
38a. Tertian malaria (<i>P. vivax</i>) ...	...	22	...	...	22	1	244	76	...
38b. Quartan malaria (<i>P. malariae</i>) ...	1	34	12	...	47	3	2	1	...
38c. Subtertian malaria (<i>P. falciparum</i>)	34	1,208	267	30	1,509	35	14,435	5,936	1
38d. Malaria—type unspecified ...	8	589	71	19	668	20	10,226	5,505	5
38e. Blackwater fever	1	8	9	2	18	...	...	1	...
39a. Leishmaniasis ... ... ...	...	1	...	...	1	...	...	...	...
39b. Spirochætosis icterohæmorrhigica ...	...	...	...	...	...	...	...	...	...
39c. Trypanosomiasis	195	1,018	283	68	1,496	105	1,814	903	1
39d. Yaws	26	245	136	4	407	23	60,408	49,773	169
39e. Other protozoal diseases ...	1	2	...	1	3	...	2	4	...
40. Ankylostomiasis	19	525	124	14	668	37	1,326	813	...
41. Hydatid cysts ... ... ...	...	...	1	...	1	...	...	...	...
42a. Ascariasis	4	156	80	...	240	9	13,103	11,299	...
42b. Dracontiasis (guinea-worm) ...	15	578	34	...	627	24	775	314	...
42c1. Filariasis (<i>bancrofti</i>) ...	...	6	...	...	6	1	41	10	...
42c2. Filariasis (<i>loa-loa</i>) ...	...	7	2	...	9	...	261	123	...
42c3. Onchocerciasis ... ... ...	...	25	3	2	28	1	22	7	...
42d. Schistosomiasis (<i>haematum</i>) ...	4	153	11	6	168	12	541	49	...
42e. Schistosomiasis (<i>mansonii</i>) ...	5	53	3	2	61	2	101	7	1
42f. Taeniasis (tape-worm) ...	6	261	67	...	334	4	6,304	2,020	6
42g. Other helminthiasis (<i>oxyuris</i> , &c.)	3	30	12	...	45	1	185	124	...
43a. Actinomycosis ... ... ...	...	3	...	...	3	...	6	7	...
43b. Other mycoses (madura-foot, &c.)	1	17	1	...	19	...	48	36	...
44a. Sequelæ of vaccination	1	13	...	...	14	...	1,850	796	...
44b. German measles ... ... ...	...	3	...	...	3	...	23	9	...
44c. Chicken-pox...	53	976	109	1	1,138	34	540	78	...
44d. Mumps	2	15	1	...	18	...	164	70	...
44e. Dengue ... ... ...	...	2	...	...	2	...	8	...	...
44f. Glandular fever ... ... ...	...	1	...	...	1	...	...	...	...
44g. Other infectious and parasitic diseases ... ... ...	...	1	1	1	2	...	18	81	...
II.—Cancer and other Tumours.									
Cancer of—									
45. Buccal cavity and pharynx ...	...	7	1	...	8	1	5	1	...
46a. Oesophagus ... ... ...	...	2	1	3	3	...	...	...	...
46b. Stomach and duodenum ...	...	2	6	2	8	1	2	1	1
46c. Rectum ... ... ...	...	2	1	1	3	...	5	2	...
46d. Liver ... ... ...	...	12	4	7	16	...	9	2	...
46e. Pancreas ... ... ...	...	2	...	1	2	...	...	...	...
46f. Other digestive organs ...	...	4	1	1	5	...	2	1	...
47. Respiratory organs ... ... ...	...	2	...	2	2	...	...	...	...
48. Uterus ... ... ...	...	9	...	9	1	...	12	...	...
49. Other female genital organs ...	2	...	9	...	11	...	...	3	...
50. Breast ... ... ...	...	22	1	22	1	...	...	25	...
51. Male genito-urinary organs ...	...	21	...	1	21	1	14	...	...
52. Skin	3	19	6	2	28	1	10	1	...
53. Other organs	1	19	12	3	32	6	13	7	2
54a. Dermoid cyst	6	18	19	1	43	1	34	37	...
54b. Fibroid, uterine	1	...	79	8	80	11	...	135	...
54c. Lipoma	13	126	65	2	204	10	215	109	...
54d. Other non-malignant tumours ...	10	245	132	18	387	21	454	298	...
55. Tumours of undetermined nature	3	40	29	5	72	2	114	70	...
Carried forward	1,003	15,132	4,021	712	20,156	1,183	145,004	89,047	217

TABLE V.—RETURN OF DISEASES AND DEATHS (NON-EUROPEAN)
FOR THE YEAR 1936—continued.

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.					OUT-PATIENTS.			
		TOTAL.		Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.	
		Admissions.	Male.							
Brought forward	...	1,003	15,132	4,021	712	20,156	1,183	145,004	89,047	217
III.—Rheumatism, Diseases of Nutrition and of Endocrine Glands and other General Diseases.										
56. Rheumatic fever	
57a. Chronic rheumatism	...	42	657	142	9	841	36	25,762	14,408	1
57b. Rheumatoid arthritis, osteo- arthritis, &c.	...	3	48	6	2	57	...	353	170	...
58. Gout	5	...	...
59. Diabetes mellitus	...	3	34	6	4	43	2	35	23	...
60a. Scurvy (<i>hypovitaminosis C</i>)	1	...	...	1	...	18	14	...
60b. Hypovitaminosis A	...	1	8	2	...	11	...	321	108	...
61a. Beri-beri (<i>hypovitaminosis B₁</i>)	...	2	10	4	...	16	...	7	3	...
61b. Epidemic dropsy (toxaemic)	2	1	3	3	...	4	2	...
62. Pellagra (<i>hypovitaminosis B₂</i>)	2	1	...	3	...	11	11	...
63. Rickets (<i>hypovitaminosis D</i>)	6	4	1	10	...	48	21	...
65. Diseases of the pituitary gland	1	...	1	...	2	15	...
66a. Simple goitre	...	3	19	51	5	73	7	110	176	...
66b. Exophthalmic goitre	...	1	1	9	...	11	...	8	10	...
66c. Other diseases of thyroid and parathyroids	4	14	1	18	...	9	10	...
67. Diseases of the thymus
68. Diseases of the adrenals
69. Other general diseases	...	2	7	3	1	12	1	92	31	1
IV.—Diseases of the Blood and Blood Forming Organs.										
70a. Purpura	2	1	2	3	...	1	...	...
70b. Hæmophilia	2	...	1	2	...	1	...	...
71a. Pernicious anaemia
71b. Anæmia—other types	...	19	224	253	15	496	20	1,840	2,107	1
72a. Leukæmia	1	...	...	1	...	1	2	...
72b. Lymphadenoma	...	1	14	7	4	22	...	26	5	...
73. Diseases of the spleen (splenome- galy, &c.)	...	9	102	80	6	191	13	1,742	1,259	...
74. Other diseases of the blood and blood forming organs	5	1	2	6	...	14	5	...
V.—Chronic Poisoning.										
75. Alcoholism (acute or chronic)	...	9	1	...	...	10	...	1	...	...
76. Chronic poisoning by other organic substances (cocaine, morphine, &c.)	...	3	1	...	...	4	...	...	...	...
77. Chronic poisoning by mineral substances	...	3	1	1	...	4	...	1	...	...
VI.—Diseases of the Nervous System and Sense Organs.										
78. Encephalitis, cerebral abscess, &c. (not including encephalitis lethargica; see 17)	...	6	4	3	...	10	...	...	...	...
79. Meningitis (not including tubercu- lar or cerebro-spinal meningitis; see 18)	...	28	7	28	...	35	...	6	1	...
80. Tabes dorsalis (Locomotor ataxy)	...	12	3	...	...	15	2	10	1	...
Carried forward	...	1,089	16,342	4,624	800	22,055	1,264	175,432	107,429	220

TABLE V.—RETURN OF DISEASES AND DEATHS (NON-EUROPEAN)
FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.					OUT-PATIENTS.		
		TOTAL.		Total Cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.	
		Admissions.	Deaths.						
Male.	Female.								
Brought forward	1,089	16,342	4,624	800	22,055	1,264	175,432	107,429	220
VI.—Diseases of the Nervous System and Sense Organs—contd.									
81. Other diseases of spinal cord (not including acute poliomyelitis; see 16)	1	12	3	1	16	...	5	6	...
82a. Cerebral haemorrhage. Apoplexy	1	20	4	13	25	2	10	3	1
82b. Cerebral embolism ...	...	2	1	2	3	...	1	1	...
82c. Cerebral thrombosis ...	...	2	...	1	2	...	1	2	1
82d. Hemiplegia and other paralysis of unstated origin	39	181	34	22	254	22	219	75	1
83. General paralysis of the insane ...	...	4	...	2	4	...	3	3	1
84a. Dementia praecox ... ...	...	2	2	1	4	...	2	2	...
84b. Paranoia ... ...	...	4	...	...	4	1	4	4	...
84c. Other forms of insanity	164	196	96	21	456	...	44	18	1
85. Epilepsy	9	121	43	15	173	9	367	115	...
86. Infantile convulsions (under five years of age) ... ...	...	13	13	9	26	...	25	30	...
87a. Chorea ... ...	...	3	4	2	7	...	...	2	...
87b. Neuritis. Neuralgia	4	52	16	2	72	2	1,752	736	...
87c. Disseminated sclerosis	1	3	1	...	5	1	8	...	...
87d. Amentia ... ...	...	6	...	1	6	...	6	3	...
87e. Hysteria	1	...	25	...	26	...	...	57	...
87f. Psychasthenia. Neurasthenia ...	1	19	6	...	26	3	201	79	...
87g. Other diseases of the nervous system ... ...	...	28	6	3	34	2	185	65	...
88a. Cataract	3	93	34	1	130	9	293	109	...
88b. Conjunctivitis	20	347	110	...	477	18	7,749	4,157	...
88c. Ectropion. Entropion	1	23	6	...	30	1	23	29	...
88d. Errors of refraction ... ...	...	8	1	...	9	...	262	130	...
88e. Glaucoma	2	15	7	...	24	5	33	15	...
88f. Iritis	1	31	18	...	50	3	140	52	...
88g. Keratitis	2	45	16	...	63	4	140	62	...
88h. Pterygium ... ...	...	11	7	...	18	1	100	45	...
88i. Trachoma	1	15	7	...	23	1	95	89	...
88j. Ulcer of cornea. Staphyloma. Leukoma	4	87	32	1	123	3	448	154	...
88k. Other diseases of the eye and annexa	5	140	48	1	193	11	3,033	1,191	...
89a. Otitis	3	76	22	...	101	4	4,903	2,255	1
89b. Mastoiditis	1	10	1	2	12	...	93	64	...
89c. Other diseases of the ear	1	18	10	...	29	1	915	679	...
89d. Wax in ear ... ...	...	6	...	...	6	...	587	220	...
VII.—Diseases of the Circulatory System.									
90. Pericarditis ... ...	...	11	2	5	13	...	32	13	...
91. Acute endocarditis ... ...	...	8	4	5	12	1	26	8	1
92. Chronic endocarditis. Valvular heart disease	11	129	60	50	200	6	241	130	...
93. Myocardial degeneration. Chronic myocarditis	11	174	41	57	226	16	226	123	2
94. Diseases of the coronary arteries. Angina pectoris. Coronary thrombosis, &c. ... ...	...	4	1	3	5	...	25	2	...
95a. Disordered action of the heart ...	...	31	3	4	34	...	76	49	...
95b. Other diseases of the heart ...	5	67	21	20	93	3	187	64	...
96. Aneurysm	2	23	3	7	28	2	10	8	1
97. Arterio-sclerosis ... ...	...	4	1	2	5	...	24	9	1
98. Gangrene	3	53	18	9	74	12	22	11	...
99. Other diseases of the arteries ...	...	3	1	1	4	...	14	6	...
100a. Haemorrhoids	7	146	63	2	216	6	770	332	...
Carried forward	1,393	18,588	5,415	1,065	25,396	1,413	198,732	118,636	231

TABLE V.—RETURN OF DISEASES AND DEATHS (NON-EUROPEAN) FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.					OUT-PATIENTS.		
		TOTAL.		Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.
		Admissions.	Male.						
Brought forward	1,393	18,588	5,415	1,065	25,396	1,413	198,732	118,636	231
VII.—Diseases of the Circulatory System—contd.									
100b. Varix. Varicose veins. Varicocele	3	29	...	...	32	...	63	13	...
100c. Phlebitis ... ... ...	...	9	2	...	11	...	14	3	...
100d. Other diseases of veins	1	...	2	...	3	...	33	4	...
101a. Bubo (non-specific)	22	308	62	1	392	17	954	105	...
101b. Adenitis and other diseases of the lymphatic system	22	356	49	2	427	22	1,819	596	...
102. Abnormalities of blood pressure, hyperpiesia, &c. ... ...	...	1	...	...	1	...	84	16	...
103a. Epistaxis ... ... ...	...	10	3	...	13	...	131	62	...
103b. Other diseases of the circulatory system	1	7	3	...	11	...	26	12	...
VIII.—Diseases of the Respiratory System.									
104a. Rhinitis. Coryza ... ... ...	...	45	11	1	56	...	3,153	1,968	2
104b. Other diseases of the nose ...	...	6	1	...	7	...	33	15	...
104c. Diseases of the accessory nasal sinuses ... ... ...	...	8	1	1	9	...	11	2	...
104d. Nasal polypus ... ... ...	...	6	1	...	7	11	17	15	...
104e. Gangosa ... ... ...	...	4	7	...	11	...	48	40	...
105a. Laryngitis ... ... ...	...	30	11	3	41	2	311	154	...
105b. Other diseases of the larynx ...	1	4	2	...	7	...	12	9	...
106a. Acute bronchitis	24	628	184	40	836	36	18,991	9,752	26
106b. Chronic bronchitis ...	7	272	62	7	341	26	6,778	4,848	2
106c. Bronchiectasis	1	11	...	2	12	...	22	17	...
107. Broncho-pneumonia	18	441	119	188	578	17	289	160	8
108. Lobar pneumonia	63	919	146	286	1,128	44	275	61	3
110a. Pleurisy	4	167	23	20	194	4	752	172	1
110b. Empyema ... ... ...	...	29	5	4	34	4	7	...	...
111a. Hypostatic congestion of lungs...	...	8	...	1	8	...	4	...	...
111b. Embolism of lung ... ...	...	...	2	1	2	...	...	...	...
112a. Asthma	2	78	19	9	99	3	193	58	...
112b. Hay fever ... ... ...	...	...	...	...	...	...	...	...	...
113. Pulmonary emphysema ... ...	...	4	1	1	5	...	1	1	...
114a. Gangrene or abscess of lung ...	...	4	1	2	5	...	3	1	...
114b. Other diseases of the respiratory system ... ... ...	...	8	...	1	8	...	681	262	...
IX.—Diseases of the Digestive System.									
115a. Dental caries. Alveolar abscess	2	179	33	...	214	12	4,346	1,652	...
115b. Pyorrhœa ... ... ...	...	28	12	...	40	1	1,180	627	...
115c. Stomatitis	3	67	31	10	101	5	1,964	1,342	...
115d. Tonsillitis. Pharyngitis. Quinsy	7	135	45	2	187	4	1,685	875	...
115e. Adenoids ... ... ...	...	1	1	...	2	...	49	29	...
115f. Other diseases of the buccal cavity, pharynx, etc. ...	1	18	7	6	26	...	195	81	...
116. Diseases of the oesophagus ...	...	2	2	...	4	...	12	1	...
117a. Ulcer of the stomach ...	1	22	4	2	27	...	27	5	...
117b. Ulcer of the duodenum ...	1	12	1	3	14	2	97	61	...
118a. Gastritis	3	102	32	1	137	12	1,547	858	...
118b. Dyspepsia	10	205	46	1	261	7	4,548	3,000	...
118c. Other diseases of the stomach ...	1	26	13	5	40	...	510	194	...
119. Infantile diarrhoea (under two years of age) ... ...	...	39	28	12	67	2	1,135	1,000	6
Carried forward	1,591	22,816	6,387	1,677	30,794	1,644	250,732	146,707	279

TABLE V.—RETURN OF DISEASES AND DEATHS (NON-EUROPEAN) FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Admissions.	Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.
		Male.	Female.							
Brought forward ...	1,591	22,816	6,387	1,677		30,794	1,644	250,732	146,707	279
IX.—Diseases of the Digestive System—contd.										
120a. Sprue ...	...	...	...	...	...	...	...	...	...	...
120b. Colitis ...	1	79	35	4	115	4	974	546	...	...
120c. Gastro-enteritis ...	2	134	68	25	204	9	490	325	1	1
120d. Diarrhoea ...	9	385	117	45	511	5	4,582	2,705	5	5
121. Appendicitis ...	4	93	15	9	112	15	44	35	...	...
122a. Hernia ...	138	3,262	198	67	3,598	209	2,551	167	...	...
122b. Strangulated hernia ...	3	143	3	45	149	4	36	...	1	1
122c. Intestinal obstruction ...	...	17	9	12	26	...	8	5	...	...
123a. Constipation ...	3	162	112	2	277	1	24,116	8,595	...	...
123b. Diverticulitis ...	...	2	1	...	3	...	...	...	...	...
123c. Fistula in ano ...	8	96	26	4	130	9	112	46	...	...
123d. Ischio-rectal abscess ...	...	12	1	...	13	...	23	2	...	...
123e. Other diseases of the intestines ...	9	59	52	11	120	...	134	80	...	...
124. Cirrhosis of the liver ...	7	52	14	20	73	4	31	9	1	1
125a. Acute yellow atrophy of the liver ...	2	1	2	2	5	...	3	...	...	...
125b. Hepatitis ...	3	126	37	17	166	13	214	86	1	1
125c. Abscess of the liver ...	4	43	11	4	58	1	19	7	...	...
125d. Other diseases of the liver ...	...	12	5	7	17	...	15	8	...	...
126. Biliary calculi ...	...	2	...	...	2	...	1	1	1	...
127a. Cholecystitis ...	...	9	2	3	11	...	13	4	...	...
127b. Catarrhal jaundice ...	4	133	25	11	162	7	314	107	1	1
127c. Other diseases of the gall bladder and ducts ...	...	...	...	...	...	...	...	1	...	...
128. Diseases of pancreas ...	...	...	...	...	...	...	...	1	...	...
129. Peritonitis ...	...	23	27	18	50	2	14	9	...	...
X.—Non-Venereal Diseases of the Genito-Urinary System and Annexa.										
130. Acute nephritis ...	6	92	46	29	144	14	149	65	3	3
131. Chronic nephritis ...	17	217	88	80	322	21	222	83	...	...
133a. Pyelitis ...	8	11	2	19	1	37	22	...	...	...
133b. Other diseases of the kidney and annexa ...	...	17	8	5	25	2	27	9	...	...
134a. Calculi of the kidney and ureter ...	2	...	...	...	2	...	16	22	...	...
134b. Calculi of the bladder ...	10	4	2	14	...	5	3	3	...	...
135a. Cystitis ...	6	88	29	6	123	3	468	280	...	...
135b. Other diseases of the bladder ...	2	22	9	4	33	...	31	8	...	...
136a. Stricture of the urethra ...	39	470	...	18	509	24	551	...	...	...
136b. Urethral fistula ...	7	113	19	5	139	5	106	9	1	1
136c. Perineal abscess ...	30	...	...	...	30	...	24	1	...	...
136d. Other diseases of the urethra ...	1	83	6	4	90	...	346	48	1	1
137a. Hypertrophy of the prostate ...	6	...	2	6	...	...	1	...	...	...
137b. Prostatitis ...	2	14	...	2	16	...	45	...	...	...
137c. Other diseases of the prostate ...	8	...	...	...	8	...	6	...	...	...
138a. Phimosis ...	31	567	...	...	598	17	2,513	...	...	...
138b. Epididymitis. Orchitis ...	12	303	...	...	315	7	797	...	...	...
138c. Hydrocele ...	52	1,014	...	12	1,066	47	702	...	...	...
138d. Other non-venereal diseases of the male genital organs ...	5	58	...	1	63	4	224	...	...	...
138e. Granuloma venereum ...	3	42	8	...	53	4	53	12	...	...
139a. Diseases of the ovary ...	2	...	38	4	40	2	...	346	...	...
139b. Salpingitis and other diseases of the Fallopian tube ...	4	...	105	1	109	4	...	350	...	...
139c. Pelvic cellulitis, abscess, etc. ...	3	...	42	2	45	1	...	283	...	...
139d. Displacement of uterus ...	3	...	106	2	109	2	...	179	...	...
Carried forward ...	1,983	30,825	7,666	2,164	40,474	2,085	290,751	161,164	294	

TABLE V.—RETURN OF DISEASES AND DEATHS (NON-EUROPEAN) FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.					OUT-PATIENTS.			
		TOTAL.		Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.	
		Admissions.	Male.							
Brought forward	...	1,983	30,825	7,666	2,164	40,474	2,085	290,751	161,164	294
X.—Non-Venereal Diseases of the Genito-Urinary System and Annexa—contd.										
139e. Dysmenorrhœa	...	1	...	119	...	120	10	...	2,605	...
139f. Endometritis. Cervicitis	...	6	...	261	2	267	13	...	570	1
139g. Menorrhagia	40	...	40	...	...	473	...
139h. Mastitis. Abscess and other diseases of the breast	...	7	2	95	3	104	2	17	789	...
139i. Other diseases of the female genital organs	...	10	...	194	4	204	7	...	1,169	...
XI.—Diseases of Pregnancy, Child Birth and the Puerperal State.										
140. Post-abortive sepsis	...	1	...	17	...	18	...	...	6	...
141a. Abortion	...	8	...	245	11	253	4	...	323	6
141b. Ante-partum haemorrhage	50	2	50	2	...	30	...
142. Ectopic gestation	9	2	9	1	...	6	...
143. Hydatid mole and other accidents of pregnancy	...	1	...	110	4	111	3	...	363	...
144a. Placenta prævia	17	2	17	...	...	7	...
144b. Other puerperal haemorrhage	8	...	8	...	...	2	...
145. Puerperal sepsis	...	1	...	26	9	27	1	...	36	1
146. Puerperal albuminuria. Eclampsia	...	1	...	49	5	50	...	...	8	...
147. Other toxæmias of pregnancy	...	3	...	76	6	79	1	...	352	...
148a. Puerperal phlegmasia alba dolens
148b. Puerperal embolism
149a. Difficult labour	...	1	...	187	40	188	2	...	7	...
149b. Retained placenta	58	13	58	4	...	5	...
149c. Other accidents of child birth	...	1	...	89	5	90	2	...	117	...
150a. Puerperal insanity	1	...	1	...	...	1	...
150b. Puerperal diseases of the breast	15	...	15	...	...	27	...
150c. Normal labour	...	27	...	1,514	1	1,541	18	...	130	...
XII.—Diseases of the Skin and Cellular Tissue.										
151. Carbuncle. Boil	...	2	118	21	3	141	3	2,998	739	...
152a. Cellulitis	...	34	654	124	27	812	30	3,115	868	...
152b. Acute abscess	...	46	1,142	192	21	1,380	55	4,550	1,462	...
152c. Whitlow	...	9	113	22	...	144	2	1,907	902	...
153a. Ainhum	...	2	26	2	...	30	1	160	37	...
153b. Chigoes	21	3	...	24	3	185	61	...
153c. Eczema. Dermatitis	...	10	106	36	4	152	7	3,336	1,661	...
153d. Elephantiasis	...	43	486	73	12	602	49	521	81	...
153e. Herpes	...	1	13	2	...	16	...	247	73	...
153f. Impetigo	...	2	24	12	...	38	1	533	264	...
153g. Keloid	...	1	16	10	...	27	...	77	74	...
153h. Myiasis	3	2	...	5	...	3	1	...
153i. Pediculosis	6	4	...	10	...	60	714	...
153j. Psoriasis	3	...	...	3	...	168	110	...
153k. Scabies	...	8	249	98	4	355	14	17,931	6,134	...
153l. Tinea	...	7	55	19	...	81	2	7,621	2,371	...
153m. Ulcer	...	421	2,647	1,289	32	4,357	439	38,289	16,285	1
153n. Urticaria	83	60	2	143	15	811	409	...
153o. Other diseases of the skin and its annexa	...	2	58	29	2	89	...	1,526	960	...
Carried forward	...	2,639	36,650	12,844	2,380	52,133	2,776	374,806	201,396	303

TABLE V.—RETURN OF DISEASES AND DEATHS (NON-EUROPEAN) FOR THE YEAR 1936—*continued.*

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Admissions.	Deaths.	Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.
		Male.	Female.							
Brought forward	2,639	36,650	12,844	2,380		52,133	2,776	374,806	201,396	303
XIII.—Diseases of the Bones and Organs of Locomotion.										
154a. Osteomyelitis	34	253	93	7		380	36	375	211	...
154b. Periostitis	4	48	11	...		63	4	559	333	...
155. Other diseases of the bones	10	63	22	2		95	9	273	162	...
156a. Arthritis	12	344	59	8		415	22	3,157	1,503	...
156b. Synovitis	6	138	26	1		170	11	1,043	287	...
156c. Other diseases of joints—loose cartilage, ankylosis, etc.	4	31	14	1		49	2	202	120	...
156d. Abscess of muscle	21	375	68	12		464	22	516	165	...
156e. Ganglion	...	30	7	...		37	...	616	174	...
156f. Lumbago	...	37	5	1		42	1	1,671	433	...
156g. Other diseases of other organs of locomotion	2	47	7	...		56	1	441	116	...
XIV.—Congenital Malformations.										
157a. Hydrocephalus	...	6	1	3		7	...	8	6	...
157b. Spina bifida. Meningocele	...	5	2	1		7	...	1	3	...
157c. Malformations of the heart	...	...	...	...		...	...	...	...	...
157d. Monstrosities	...	...	...	...		...	...	...	...	...
157e. Cleft palate. Harelip	...	1	1	...		2	...	3	1	...
157f. Imperforate anus	...	2	2	...		4	...	...	...	...
157g. Other congenital malformations	14	17	7	1		38	...	44	45	...
157h. Hæmatocolpos	...	...	...	...		...	...	...	...	...
XV.—Diseases of Early Infancy.										
158. Congenital debility	21	81	61	66		163	7	244	193	4
159. Premature birth	...	1	10	3		11	...	1	6	2
160. Injury at birth	2	...	5	...		7	...	...	3	...
161a. Icterus neonatorum	...	7	2	2		9	...	2	...	1
161b. Pemphigus neonatorum	...	...	1	...		1	...	9	6	...
161c. Other diseases peculiar to early infancy	2	42	58	29		102	5	551	748	8
XVI.—Old Age.										
162a. Senile dementia	...	1	3	2		4	1	27	13	...
162b. Other forms of senile decay	...	23	6	13		29	1	47	83	1
XVII.—Affections due to Violence.										
165a. Suicide	...	3	...	2		3	...	2	...	2
165b. Attempted suicide	...	12	3	...		15	2	...	...	...
172. Infanticide	...	1	...	...		1	...	...	1	1
173. Homicide	...	9	...	3		9	...	21	9	24
176a. Snake bite	...	85	19	8		104	2	159	43	...
176b. Insect bite or sting	1	9	4	1		14	...	450	107	...
177. Food poisoning	1	6	3	2		10	...	...	6	...
178. Accidental gas poisoning	...	...	...	...		...	...	...	...	...
179. Other acute accidental poisoning	1	18	14	8		33	...	27	7	...
181a. Burns by fire	29	163	95	36		287	20	1,606	837	...
181b. Other burns or scalds	7	44	37	9		88	5	470	278	...
182. Accidental mechanical suffocation	...	2	1	1		3	...	19	6	...
Carried forward	2,810	38,554	13,491	2,602		54,855	2,927	387,350	207,301	346

TABLE V.—RETURN OF DISEASES AND DEATHS (NON-EUROPEAN)
FOR THE YEAR 1936—continued.

Diseases.	Remaining in Hospital at end of 1935.	IN-PATIENTS.						OUT-PATIENTS.		
		TOTAL.		Total cases treated.	Remaining in Hospital at end of 1936.	Male.	Female.	Deaths.		
		Admissions.	Deaths.							
Brought forward	2,810	38,554	13,491	2,602	54,855	2,927	387,350	207,301	346	
XVII.—Affections due to Violence—contd.										
183. Accidental drowning ... ...	...	16	...	3	16	1	...	2	1	
184. Accidental injury by firearms ...	20	263	42	11	325	17	69	4	5	
Injuries:—										
185. By cutting or piercing instruments	37	705	109	22	851	42	9,248	1,519	...	
186a. Due to falls, crushing, machinery, railways, &c. ...	25	446	73	36	544	46	4,638	903	...	
186b. Due to motor accidents ...	28	140	31	15	199	13	296	65	...	
188. By non-venomous animals ...	6	30	27	6	63	3	381	165	1	
189. Hunger or thirst (starvation, privation)	2	7	8	7	17	...	12	2	1	
191a. Heat stroke ... ... ...	...	1	1	1	2	...	...	...	...
191b. Sunstroke ... ... ...	...	1	2	...	3	1	...	...	...
192. Injuries by lightning ... ...	...	5	...	...	5	...	...	...	...
193. Injuries by electricity ... ...	...	9	2	...	11	1	5	1	...	
194a. Dislocation	2	55	9	1	66	5	211	42	...	
194b. Sprain	2	152	10	2	164	11	2,671	440	...	
194c. Fracture	74	652	136	60	862	85	415	143	3	
194d. Wounds and other external injuries	55	1,465	300	32	1,820	76	25,839	4,484	...	
196. Wounds of war ... ... ...	...	...	...	...	...	...	369	85	...	
198. Execution ... ... ...	...	...	...	...	...	...	...	...	...
XVIII.—Ill-Defined Diseases.										
200a. Asthenia	4	88	33	28	125	4	1,750	1,306	1	
200b. Goundou ... ... ...	...	6	...	1	6	...	20	6	...	
200c. Malingering	1	20	2	...	23	...	149	4	...	
200d. Pyrexia of uncertain origin ...	1	23	6	2	30	...	49	23	1	
200e. Shock ... ... ...	...	5	6	5	11	...	2	1	...	
200f. Hyperpyrexia	1	3	1	...	5	...	7	1	...	
Diseases not included above.										
201. Anti-rabic prophylaxis	1	42	10	...	53	...	160	54	...	
202. Ascitis ... ... ...	...	32	8	11	40	2	12	5	...	
203. Avitaminosis ... ... ...	...	1	...	1	1	...	...	...	...
204. Gun Shot Wounds ... ...	...	1	...	1	1	...	...	...	...
210. Transferred cases already diagnosed by Medical Officer on other station ... ...	...	...	...	...	...	...	...	...	...
Total cases of Diseases treated	3,069	42,722	14,307	2,847	60,098	3,234	433,653	216,556	359	

APPENDICES.

APPENDIX A.

Laboratory Service.

I.—PATHOLOGICAL UNIT.

(*Laboratory of the African Hospital, Lagos, and the Research Laboratory at Yaba*).

ROUTINE WORK CARRIED OUT AT THE LABORATORY, LAGOS.

Rabies.—Fifty-one brains were received during the year for examination. In 1935 forty-two were received. Of the fifty-one specimens, forty-four were from dogs, four from cats and three from humans. One of the human brains was negative on histological examination but proved positive on animal inoculation.

The distribution of the positive brains is as follows:—Aba, 1; Bamenda, 8 (1 human); Bando, 1 human; Degema, 1; Gusau, 1; Ibadan, 4 (1 human); Ilesha, 1; Ilorin, 1; Kano, 2; Lagos, 4; Ogbomosho, 1; Okigwi, 2; Owerri, 1; and Umuahia, 1.

Tumours.—One hundred and forty-six specimens of tumours were examined during 1936. In 1935 ninety-nine were examined.

Forty-nine of the tumours were benign and ninety-seven malignant.

(Carcinomata, 58. Sarcomata, 26. Melanomata, 13).

Regional distribution of the malignant neoplasms.

Site.	Carcinoma.	Sarcoma.	Melanoma.
Alimentary tract	...	2	1 (mouth)
Bladder	...	3	...
Bones and Joints	...	2 (Adamantinomata)	5
Breast (Female)	...	9	...
" (Male)	...	1	1
Brain	1
Genitals (Female)	...	7	3
" (Male)	...	3	...
Kidney	...	2	...
Liver	...	6 (All primary)	...
Lymph nodes	...	5 (Secondary)	4
Orbit	...	1	2
Parotid	...	2	...
Skin, subcutaneous tissue and muscles	...	13	9
Thyroid	...	2	12

Miscellaneous Histological Examinations.—470 specimens were examined and reported upon, an increase of 105 over the previous year.

Post-mortem Examinations.—During the year 303 autopsies were performed by the staff of the Pathological Unit as compared with 341 in 1935. Of these ninety-five were Coroner's, 114 were Health and the remainder hospital cases. Two of the Coroner's cases and one hospital case were Europeans, the cause of death being drowning, railway accident and general peritonitis following appendicitis.

In addition, fifty-eight autopsies were performed by the Pathologist i/c Yellow Fever Unit. Fifty-one were Health and seven were Coroner's cases.

The following is a summary of the post-mortem examinations performed:—

Accidents	...	...	14	Drowning 4, fractured skull 2, gunshot 1, injuries by train 2, by motor car 3, penetrating wounds of abdomen 2.
Abscess	...	...	10	Brain 2, heart 1, lung 5, muscle 1, pancreas 1.
Aneurysm	...	...	5	
Ankylostomiasis	...	...	2	
Atheroma	...	...	19	Syphilitic 6, simple 13.
Anæmia (sickle-cell)	...	...	3	
Acute hæmorrhagic pancreatitis	...	...	1	
Birth injury	...	...	1	
Bronchitis	...	...	10	
Broncho-pneumonia	...	...	65	(Hæmorrhagic 6, with abdominal syndrome-2).
Cerebral softening	...	...	5	
Cerebral hæmorrhage	...	...	2	
Chronic lymphatic leukaemia	...	...	1	
Chronic intestinal obstruction	...	...	1	
Cirrhosis of liver	...	...	4	
Congenital abnormality of heart	...	...	1	
Congenital pyloric stenosis	...	...	1	
Cavernous sinus thrombosis	...	...	1	
Cancrum oris	...	...	3	
Duodenal ulcer	...	...	2	
Dysentery Amœbic	...	...	8	
Dysentery Bacillary	...	...	9	
Eclampsia	...	...	1	
Enteric Fever	...	...	2	
Exposure and starvation	...	...	1	
Fatty degeneration of heart	...	...	1	
Gastric hæmorrhage	...	...	1	
Hanging	...	...	1	
Hodgkin's disease	...	...	1	
Intussusception	...	...	1	
Icterus Neonatorum	...	...	1	
Lobar Pneumonia	...	...	10	
Malignant disease	...	...	13	Carcinoma bladder 1, carcinoma liver 4, carcinoma scalp 1, carcinoma small intestine 1, carcinoma stomach 1, carcinoma vagina 1, neuroblastoma of kidneys 1, sarcoma of vertebral column 1, sarcoma of iliac bone 1, sarcoma of brain 1.
Meningitis (pneumococcal)	...	...	4	
Marasmus	...	...	4	
Malaria	...	...	10	
Nephritis	...	...	26	(Suppurative 4).
Peritonitis	...	...	7	
Pleurisy	...	...	1	
Post-partum hæmorrhage	...	...	1	
Poisoning	...	...	3	(Cause unknown).
Pyæmia	...	...	4	
Puerperal sepsis	...	...	1	
Ruptured uterus	...	...	2	
Ruptured ectopic pregnancy	...	...	1	
Septicæmia	...	...	1	
Strangulated hernia	...	...	5	
Sasswood poisoning	...	...	3	
Senility	...	...	1	
Tuberculosis	...	...	49	Generalised 11, glandular 8, pulmonary 28, pericardial 1, peritoneal 1.
Toxæmia	...	...	7	
Tetanus	...	...	1	
Unknown	...	...	9	(Decomposition 7).
Valvular disease of heart	...	...	11	

The following table gives an analysis of the post-mortems performed by the Pathologists in Lagos over a period of ten years, with regard to certain diseases:—

Year.	1927.	1928.	1929.	1930.	1931.	1932.	1933.	1934.	1935.	1936.
No. of Post-mortems	298	265	172	207	183	128	187	298	341	361
	%	%	%	%	%	%	%	%	%	%
Broncho-pneumonia ...	15	13	16	16	13	21	38	29	26	20
Lobar Pneumonia ...	...	...	...	...	...	...	2	4	6	5
Tuberculosis, all cases	14	10	9	8	11	17	12	16	17	12
Bacillary dysentery ...	...	3	4	1	3	6	4	2	1	2
Amoebic dysentery ...	...	2	...	...	...	...	2	2	1	2
Malaria ...	...	0·7	...	...	...	...	1	...	5	2
Malignant Disease ...	3	2	3	3	0·5	2	1	3	3	3

MISCELLANEOUS BACTERIOLOGICAL EXAMINATIONS.

The examinations of blood, stools, urine, sputum and pus smears for gonococci are recorded in tabular form.

Two hundred other examinations were made including twenty-three for mycobacterium leprae (four positive).

Biochemical Tests.—During the year the following tests were performed:—

Blood sugar estimation	...	...	18	(Single 12. Curve 6).
Blood urea estimation ...	...	...	5	
Fractional gastric analysis ...	...	...	41	
Quantitative estimation of sugar in urine	...	...	10	
Urea concentration tests	...	...	2	
Van den Bergh reaction	...	...	6	

At the Research Laboratory at Yaba the investigation into the method of growing vaccinia vaccine in the chorio-allantoic membrane of chick embryos was continued. It was found that though excellent results were obtained with the vaccine when kept at refrigerator temperature (10°C) it rapidly lost its potency when exposed to room temperature ($25^{\circ}\text{-}27^{\circ}\text{C}$) and it was decided that the vaccine was not suitable for use under the conditions at present prevailing in Nigeria.

The work on tropical ulcer was continued and a paper entitled "Results of experimental inoculation in hedgehogs" was published in the Trans. Roy. Soc. Tropical Medicine and Hygiene, Vol. XXX, No. 2, July, 1936.

MEDICAL, LABORATORY SERVICE, NIGERIA.

Blood Examinations.		No. of Examinations.	Subterian.	Crescents.	Quartan.	Benign tertian.	Trypanosomes.	Microfilaria.	Spiromenata.	Total R.B.C.	Total W.B.C.	Differential W.B.C.
European male ...		439	47	..	..	1	..	1	..	..	11	17
,, female ...		155	19	..	..	..	..	..	..	..	1	2
Total ...		594	66	..	1	1	..	2	..	9	12	19
African male ...		3,077	370	7	1	..	..	131	..	67	81	70
,, female ...		1,649	293	3	..	..	..	29	..	35	37	35
Total ...		4,726	663	10	1	..	..	160	..	102	118	105
Total ...	...	5,320	729	10	2	1	..	162	..	111	130	124

Stool Examinations.		No. of Examinations.	T. saginata.	Ascaris.	Ancylostome.	T. trichinra.	Strongyloides.	Flagellates.	E. histolytica.	E. coli.	S. mansoni.	Blood.	Mucus.	Cellular exudate.	Other protozoa.
European male ...		232	1	4	1	9	2	4	1	..	..	..	..	..	..
,, female		90	..	2	..	3	..	2	..	..	..	..	..	..	..
Total ...		322	1	6	1	12	2	6	1	2	..	..	..	..	..
African male ...		3,037	6	1,808	1,011	1,090	96	92	15	2	12	58	9	195	268
,, female ...		847	...	434	243	261	27	23	1	...	8	14	0	47	95
Total ...		3,884	6	2,242	1,254	1,351	123	115	16	2	20	72	9	242	363
Total ...	...	4,206	7	2,248	1,255	1,363	125	121	17	4	20	72	9	269	400

REMARKS:—Included under the protozoa are nine cases of *Balantidium coli* infection. *Enterobius vermicularis* was found in three cases in Africans.

Urine Examinations.

		No. of Examinations.					
		40	20	1	3	2	14
			Albumen.	Sugar.	Phosphates.	Casts.	Pus.
European male	...	40	20	1	3	2	14
„ female	...	14	9	...	2	...	7
Total	...	54	29	1	5	2	21
African male	...	3,289	1,844	51	666	116	1,790
„ female	...	802	588	16	75	27	548
Total	...	4,091	2,432	67	741	143	2,338
Total	...	4,145	2,461	68	746	145	2,358

Kahn Tests.

		No. of Examinations.					
		76	12	59	5	Positive.	Negative.
						Doubtful.	
European	...	76	12	59	5		
African	...	3,008	1,270	1,537	201		
Total	...	3,084	1,282	1,596	206		

Agglutination Tests.

		No. of Examinations.					
		European	African	Total
		20	45	65	4	1	5

Sputum Examinations.

		No. of Examinations.					
		27	2	...	P. pestis.	...	Spironemata.
European male	...	27	2	...	...	...	...
„ female	...	2	0	...	...	...	...
African male	...	551	132	...	...	...	...
„ female	...	78	24	...	...	...	...

Remarks.

		No. of Examinations.					
		20	4	...	Positive.	...	Negative.
		16	44	60

658.158

PUS SMEARS FOR GONOCOCCI.

			No. of Examinations.		Positives.
			
European male ..	...	...	57		24
,, female ..	...	...	2		...
Total ..	...	...	59		24
<hr/>					
African male ...	...	...	53		28
,, female ...	...	...	78		21
Total ...	...	...	131		49
Total European and African	...	...	190		73

II.—BACTERIOLOGICAL UNIT, YABA.

Kahn Tests.—3,138 sera were received for the Kahn test of which fifty-four were rejected as unsuitable for the test. The remaining 3,084 sera are shown in tabular form.

Two specimens of cerebrospinal fluid gave a positive result after globulin concentration.

Widal Tests.—Sixty-five sera were examined of which five were positive for bacterium typhosum and one for bacterium paratyphosum A.

Blood Cultures.—Thirty-two cultures were made of which one was positive for *Staph. aureus*, one for bacterium typhosum and one for *Pneumococcus*.

Urine Cultures.—Eight cultural tests were made of which three were positive for bacterium coli.

Stool Cultures.—220 cultures were made, bacterium typhosum being isolated from two cases and dysentery organisms from forty-five cases. Of these forty-five cases, three were due to bacterium dysenteriae Sonne, two to bacterium dysenteriae Schmitz and forty to bacterium dysenteriae Flexner.

The Flexner strains were further sub-divided as under:—

V.....	7	X.....	4
VW.....	1	Z.....	1
VZ.....	1	G.....	3
W.....	19	Unidentified	4

Of the four unidentified strains, one agglutinated only with a group serum while the other three failed to agglutinate with any serum. Culturally all were of the Flexner type.

In addition to the above strains three more Flexner W strains were isolated post-mortem from ulcerated intestines.

Miscellaneous Examinations.—These include the examination of ginned and unginned cotton wool for *Cl. tetani*, water samples for *bacterium typhosum* and various tinned foods for pathogenic organisms. 4,862 rat smears were examined for *P. pestis*, no positives being found.

Autogenous Vaccines.—Four vaccines for *staph. aureus* were prepared.

Anti-rabic Vaccine.—In June the Bacteriological Unit was in a position to undertake the supply of all requirements for the West African Colonies. The introduction of alkama (native wheat) into the diet has resulted in a great improvement in the health of the stock of rabbits and rabbits imported from home can be maintained for long periods without loss of condition. There has also been a great improvement in the growth of young rabbits bred locally. A total of 14,687 ccs. of vaccine was prepared.

Research Work.—No research work was possible during the year owing to the claims of other work outside the unit on the time of the Pathologist in charge.

III.—YELLOW FEVER UNIT.

The work during the year was almost entirely of a purely routine nature, viz., the performance of mouse protection tests on suspected sera.

A total of 119 sera was thus examined with the following results.

Positive ...	...	...	40
Negative	...	...	65
Inconclusive	...	...	14
			—
Total	...	...	119
			—

Considerable delay and difficulty were caused by the following causes:—

- (a) Failure to send sufficient information with the specimen.
- (b) Omitting to forward a minimum of 3 ccms serum.
- (c) Contamination of sera through faulty tubing. About 50 to 60% of the specimens received needed to be filtered, whereby a substantial amount was unavoidably lost.

Preliminary investigations were made into the possibility of absorbing the virus of yellow fever into simple proteins, e.g., egg albumen, and thereafter drying it, as a means of facilitating transport. This work was interrupted by the Pathologist going on leave.

Laigret's method of preparing yellow fever vaccine was given a trial.

It was not found possible to demonstrate any attenuation of the virus.

IV.—CLINICAL LABORATORIES.

Clinical Laboratories exist in connection with the African Hospitals at Port Harcourt, Calabar, Kaduna, Zaria and Kano.

Owing to shortage of staff it was possible to maintain a qualified Pathologist only at Port Harcourt.

At the other clinical laboratories, the examinations were carried out by trained laboratory attendants.

CLINICAL OUT-STATION LABORATORIES.

MEDICAL, LABORATORY SERVICE, NIGERIA.

			No. of Examinations.																Differential W.B.C.
			Subterian.		Crescents.		Quartan.		Benign tertian.		Trypanosomes.		Microfilariae.		Total R.B.C.		Total W.B.C.		
European male	...	...	203	31	...	...	...	...	...	...	...	...	3	...	12	15	21		
„ female	...	...	59	7	...	...	...	...	...	...	...	1	...	4	4	5			
Total	...	...	262	38	...	...	...	...	...	...	...	4	...	16	19	26			
African male	...	...	3,703	773	21	36	...	...	37	336	...	...	20	24	27				
„ female	...	...	1,531	342	97	24	...	...	6	64	...	...	10	7	19				
Total	...	...	5,234	1,115	118	60	...	43	400	...	...	30	31	46					
Total	...	...	5,496	1,153	118	60	...	43	404	...	...	46	50	72					

			No. of Examinations.																
			T. saginata.		Ascaris.		Ancylostome.		T. trichiura.		Strongyloides.		Flagellates.		E. histolytica.		E. coli.		
European male	...	135	1	...	4	4	2	1	3	7	9	1	1	1	4	58	39	37	6
„ female	...	67	1	2	1	2	...	3	10	12	10	1	
Total	...	302	1	4	5	4	2	2	5	7	12	1	1	4	68	51	47	7	
African male	...	3,998	55	1,210	1,523	743	128	220	77	175	59	188	23	649	349	469	31		
„ female	...	1,687	10	762	575	437	60	86	40	58	39	82	3	230	160	190	4		
Total	...	5,685	65	1,972	2,098	1,180	188	306	117	233	98	370	26	879	509	659	35		
Total	...	5,987	66	1,976	2,103	1,185	190	311	124	245	99	371	30	947	560	706	42		

REMARKS:—*Balantidium coli* was encountered on two occasions, and the eggs of *Oxyuris vermicularis* on three occasions in Africans.

Urine Examinations.

Urine Examinations.		No. of Examinations.										
		Albumen.	Sugar.	Phosphates.	Casts.	Pus.	Blood.	S. haematuria.	Bile salts.	Bile pigments.	Acetone.	Di-acetic acid.
European male	...	216	86	5	29	13	108	25	1	1	2	...
„ female	...	81	45	1	15	4	48	9	...	1	...	...
Total	..	297	131	6	44	17	156	34	1	2	2	...
African male	...	3,159	1,570	139	723	164	1,367	300	99	17	36	...
„ female	...	1,069	643	38	116	55	579	142	14	3	15	...
Total	...	4,228	2,213	177	839	219	1,946	442	113	20	51	...
Total ...	...	4,525	2,344	183	883	236	2,102	476	114	22	53	...

Kahn Tests.

Agglutination Tests.

Sputum Examinations.

Remarks.

Sputum Examinations.			No. of Examinations.	Tubercle bacilli.	P. pestis.	Spiromemata.	Remarks.
European male	...	...	13	:			
„ female	...	...		...
African male	...	...	301	38			
„ female	...	...	42	6			

Classification.

Simple Tumours.—Angioma, 1; papilloma, 6; fibroma, 5; fibro-myxoma, 1; desmoid, 1; xanthoma, 1; lymphadenoma, 2; adamantinoma, 1; giant cell tumour, 1; dermoid cyst, 3; branchial cyst, 1; sebaceous cyst, 1.

Malignant Tumours.—Spindle cell sarcoma, 5; lympho-sarcoma, 1; epithelioma, 11; adeno-carcinoma, 7; melanoma, 1; carcinoma of liver, 1.

BACTERIOLOGICAL EXAMINATION.*Resumé of Findings.*

Water samples, 63	...	Coliforms present in 36		
Fæces samples, 134	...	<i>B. dysenteræ</i> Flexner "W" 1		
"	"	" X " 18		
"	"	" Y " 4		
"	"	" Z " 3		
"	"	Shiga 2		
"	"	unclassified 2		
Blood cultures, 2	...	Negative.		

OUTSTATIONS CLINICAL LABORATORIES.**POST-MORTEM EXAMINATIONS 36.***Causes of Death.*

Aneurism, 2; acute intestinal obstruction, 1; acute dilation of stomach, 1; cerebral concussion, 2; cirrhosis, 2; drowning, 2; gas gangrene, 2; intussusception, 1; lobar pneumonia, 1; meningitis, 1; nephritis, 5; pancreatitis, 1; pericarditis, 2; peritonitis, 2; shock following operation, 2; strangulation, 4; thrombosis mesenterica, 1; status lymphaticus, 1; ulcerative endocarditis, 1; violence, 2.

MISCELLANEOUS.

Smears for gonococci 628. Positive 210.

Smears from rats for *B. pestis*, 108. All negative.

Cerebro-spinal fluids, 16. Positive for trypanosomes, 4.

Examination of dogs brains for rabies, 9. Positive, 5.

Smears for leprosy, 13. Positive, 3.

Smears from glands for trypanosomes, 242. Positive, 133.

Report of the Sleeping Sickness Service, 1936.

Work has been continued both in the field and at Gadau on the same lines as in 1935. Owing to temporary shortage of medical staff only five instead of the usual six teams could be kept continuously in the field. The sixth team, however, was reformed towards the end of the year, and sent to work in the Numan Division of the Adamawa Province. About the same time the services of an extra Medical Officer became available for carrying out preliminary surveys in new areas.

2. Owing largely to the fact that some of the teams were working in areas on the fringe of the main sleeping sickness belt the number of cases treated in the field was less than in 1935. Nevertheless, the year's figures bring the total number of cases diagnosed and treated by the Sleeping Sickness Service since the survey system was started in 1931 to 240,900 patients. During the same period 24,033 patients have been treated at general medical stations. The size of the areas infected and the shortage of funds have made it impossible to repeat surveys. It can, therefore, be said that approximately a quarter of a million cases have been found in the areas examined so far.

3. It has become increasingly evident that treatment by itself cannot control the disease in Nigeria. Protective measures such as communal clearing and the movement and concentration of population can be the only radical cure. The scheme of expansion of sleeping sickness control drawn up at the end of last year was submitted to the Colonial Development Fund Advisory Committee. Originally a grant of £30,000 per annum was asked for to finance it. Of this grant, approximately £11,000 was required for the expansion and improvement of the existing treatment service, and £19,000 was considered to be necessary for the part of the scheme involving communal clearing, and the movement and concentration of population. The Committee of the Colonial Development Fund are satisfied as to the development aspect of the latter part of the scheme, and they have recommended a free grant on a five years' basis to pay for this part of the service provided that the Nigerian Government finds the balance required for the improvement of the treatment service.

4. Prospects for the control of the disease in the Northern Provinces are now very much brighter. In the past it has been felt that in spite of all efforts sleeping sickness has been spreading, and has been causing increasing mortality and depopulation in certain areas. For a considerable time we have realised that, as prevention is better than cure, the protective campaign ought to be the most important part of our programme, but funds and staff have not been available. The expansion which has now been approved should come into operation in 1937. Its full effects could hardly be felt before 1938 owing to the fact that a considerable interval must elapse while the new staff are being appointed and trained.

RESEARCH WORK.

(1) THE TESTING OF EXPERIMENTAL DRUGS.

5. As cases at Gadau were not sufficiently numerous some of the testing has been done by Medical Officers at Kafanchan and Jos Hospitals. At both of these places the majority of the patients are pagans who fear and resent lumbar puncture. They are thoroughly familiar with the beneficial results obtained with the standard antrypol or Bayer 205—tryparsamide treatment and often object to receiving anything else.

6. (a) *Neocryl*.—Some sixty cases have now been treated with the British compound Neocryl (S107). This drug produces rapid clinical improvement and seems to be quite as effective as tryparsamide. In practically all cases both the blood and gland juice are cleared of trypanosomes by the time of the second routine examination, which is always carried out after the third injection of the drug, has been given. The diminution in the cell count of the cerebro-spinal fluid is not always very rapid, but most patients show considerable clinical improvement after two or three injections and declare themselves to be cured by the end of the course. Neocryl is given in 3 grammes doses at five-day intervals, this is a higher dosage than can safely be given to local patients with tryparsamide, the usual dose of which is 2 grammes at five-day intervals.

7. In some instances the injections have been followed by headache and pyrexia, but this is not usual. One of the Jos cases, a man showing considerable signs of mental aberration, complained of diminished vision after having received 16.5 grammes of the drug. He was then put on to Bayer 205, but a fortnight later was completely blind and died within a month in the last stages of cerebral trypanosomiasis. Another Jos case complained of dimness of vision after a fortnight, but this cleared up completely when the arsenical compound was discontinued and he was given Bayer 205.

8. (b) *Fouadin*.—Four cases completed a full course of treatment with Fouadin alone. Three of these cases showed some improvement clinically and trypanosomes could not be found at the end of the treatment, but they did not disappear from blood until about the eighth injection nor from the gland juice until the third to sixth injection. The remaining case showed no improvement whatsoever.

9. Nine cases were also treated in which Bayer 205 was given in 0.5 gr., 0.75 gr. and 1.0 gr. doses along with the first three injections of Fouadin. This treatment was found to be more effective than when Fouadin alone was given. At the end of the course of treatment all the patients felt well and could be discharged as cured. This treatment, however, is not very popular with the patients, as it has not the same tonic effect as our arsenical compounds have, and clinical improvement is much slower.

10. There is no evidence as yet that the other antimony compounds tested are more active than Fouadin.

(2) THE EFFECT OF EXPOSING "PREMUNISED" ANIMALS TO FRESH INFECTIONS.

11. In the 1935 report mention was made of an experiment in which twenty-one cattle which had recovered either naturally or after treatment from *T. vivax* infections were given a dose of pure *T. vivax*. It was found that these cattle were but little affected (one death in twelve months) by inoculation of a dose which sufficed to kill eight out of ten healthy animals.

12. The next point was to decide whether this resistance to *T. vivax* was due to the presence of specific anti-bodies acquired by the animals during their previous infections or whether it was a resistance inherent in the animals and not acquired artificially. As these animals had never been exposed to infection with *T. congolense* it was considered that their reaction to this disease would give information on this point. At the beginning of March, seventeen of these ("premunised") animals were therefore injected with a dose of 1,000,000 pure *T. congolense* obtained from a sheep. At the same time ten healthy animals were also given similar injections. At the end of ten months it was found that, whereas six out of the ten animals which formed the control group had died, only one death had occurred among the seventeen "premunised" animals, and that the remainder appeared reasonably

healthy, and had put on weight. It appears, therefore, from these results that these cattle possessed a natural rather than an acquired resistance to trypanosomal infection.

(3) RESISTANCE TO TRYPARSAMIDE.

13. As has been pointed out before there is as yet no definite experimental proof that ineffective treatment of a case of sleeping sickness with tryparsamide will enhance the resistance of the strain to that drug. Strains can readily be made resistant by exposure to tryparsamide in vitro or in appropriate experimental animals, and yet working with local strains in guinea-pigs it has been extremely difficult to give them a really high degree of resistance even though numerous injections have been given over a period of years. The strains used have been rather avirulent and the infections in guinea-pigs even without treatment have been characterised by frequent long remissions.

14. In 1936, Duke wrote "It is evident from Liverpool work that the resistance of these strains could readily be enhanced and that faulty treatment with arsenicals might bring about this result. In Nigeria for example where many varieties of strains occur such a danger is very real." Although to guard against this possible danger one tries to sterilise patients by giving them short courses of antrypol or Bayer 205 before the tryparsamide, further investigation is necessary.

15. In 1936, a larger scale experiment was done in the field. Some thirty monkeys were each injected with 5 c.c. of blood taken from different untreated sleeping sickness patients diagnosed during the mass survey of Kajuru district of Zaria Emirate. These patients were then given four 2 gramme injections of tryparsamide at five-day intervals. At the end of this treatment another series of monkeys was injected with their blood. The experiment has been successful. In two instances the strain has been isolated before and after treatment. The characteristics of these strains are now being investigated, particular attention being paid to the reaction to tryparsamide. Unfortunately, it has not yet been possible to establish these strains in mice and the reaction to tryparsamide will have to be tested in guinea-pigs, rats and in vitro. Results are not yet available.

(4) THE RELATIONSHIP BETWEEN *T. gambiense* AND *T. rhodesiense*.

16. Lately, fresh evidence has been obtained that in some localities the disease has become more virulent than it was six or seven years ago. Such changes of virulence have occurred in areas where there is no *G. morsitans* and very little game. They tend to confirm Dr. Lester's view that whereas *T. brucei*, *T. gambiense* and *T. rhodesiense* are essentially the one and the same trypanosome, in this country, at any rate, the more virulent variety *T. rhodesiense* is much more often derived from the less virulent variety *T. gambiense* than it is from the game trypanosome *T. brucei*. In Nigeria *G. morsitans* is only present in very localised patches. Owing to density of population game is never really common and in large blocks of country there is practically no game at all. In many of the game areas there seems to be little or no sleeping sickness. In one area in which strains indistinguishable in the laboratory from *T. rhodesiense* have been isolated there is no *G. morsitans* and very little game. In some *G. palpalis* areas the local strains of human trypanosomiasis have increased in virulence of recent years. In view of these facts it is impossible to believe that in Nigeria the more virulent strains are being derived directly from game.

(5) ENTOMOLOGICAL WORK.

17. The Entomologist, Dr. T. A. M. Nash, was on leave for the latter part of the year. His report follows:—

18. A three-year investigation into the ecology of *G. morsitans* and *G. tachinoides* has been completed and the results published: the chief results are as follows:—

19. *G. morsitans* is primarily an open woodland tsetse with great powers of dispersal which are annually checked by an adverse climate, which enforces a seasonal dependence upon the riverine forests and so controls the species' range.

20. *G. tachinoides* is primarily a riverine thicket or residual forest fly and has only a very limited wet season spread.

21. The dispersal of both species is closely associated with low evaporation; dispersal yields to concentration as the evaporative power of the air increases. The extent of the annual dispersal is indirectly governed by the duration of the wet season, the longer the season the more extensive the dispersal.

22. The Entomologist's researches in Tanganyika and Nigeria have enabled him to postulate the following law:—"The population of *G. morsitans* in both East and West Africa will be greatest shortly after, or whilst, the mean monthly evaporation lies between 20 and 25 c.c. as measured by a Livingston white atmometer sphere. As the evaporation rises above or falls below this optimum zone, so the population decreases."

23. In the very dry climate of Northern Nigeria the evaporation only falls as low as the optimum zone during two months of the year (heavy rains), so that for most of the year this species is struggling against adverse conditions and hence is incapable of multiplying and colonising great tracts of woodland as in East Africa. In Northern Nigeria there need be no fear that *G. morsitans* will ever advance into the woodland between rivers that is now fly-free, it has attempted it every rains, probably for centuries, but the severity of the dry season has annually thrown it back with heavy losses to the vicinity of the rivers; in wetter years it is more successful, but it cannot retain its gains. The West African race appears to be physiologically the same as the East African form, and hence its activities are regulated by the same meteorological law; had its optimum zone been higher it would have had many more months of favourable conditions, resulting in greater density and wider dispersal. Like the European in the tropics it has managed to adapt its habit to the local environment, but not its constitution.

24. It has been found that the adult longevity of *G. morsitans* and *G. tachinoides* decreases as the maximum temperature rises and increases as it falls; longevity is greatest in the heavy rains and cold season. Both species breed freely throughout a tremendous climatic range, the only cessation being in the heavy rains. *G. tachinoides* and to a lesser extent *G. morsitans*, shift their breeding grounds to moister and more sheltered sites as the evaporation rises throughout the dry season. The duration of the pupal period increases with falling temperature from eighteen days in the hot season to forty-one days in the cold.

25. Fly activity is closely associated with the temperature. Both species are completely inactive at temperatures below 60°F. or above 105°F; activity is greatest between 81° and 85°F. Thus in the heavy rains and cold season activity is maximal in the middle of the day, whereas in the hot season activity is then minimal. Tsetse seek to avoid excessive high temperature by becoming inactive near the ground level where it is cooler.

26. Meteorological readings from the field suggest that optimum conditions for *G. morsitans* could be reproduced artificially by keeping the saturation deficiency at 6 millibars (4.5 m.m.) with the temperature constant at 73°F. (22.8°C.) by raising the saturation deficiency breeding would be increased, but probably at the expense of the community.

27. The value of these results is that by ascertaining the fly's requirements it should be possible, by modification of the vegetation of

the riverine sanctuaries, to enlist the help of adverse climatic conditions to destroy the tsetse. A paper entitled "Climate, the Vital Factor in the Ecology of *Glossina* " has recently been published.

FIELD WORK.

28. During 1936, 417,495 people have been examined by the sleeping sickness teams and 47,550 were found to be infected. Of these 40,897 had completed treatment by the end of the year. A further 10,450 cases were diagnosed and treated at field dispensaries and 4,021 at general medical stations. This brings the total for the year to 62,021 cases.

THERAPEUTIC MEASURES.

29. The work done by the teams is shown in the table. It will be noticed that although 10,000 more people were examined than last year the cases found were nearly 37,000 fewer, the average infection rate being about 11%. This decrease in the number of cases found at the surveys has been due to the fact that several of the teams have been working on what appears to be the fringe of the main sleeping sickness belt. Such districts have to be surveyed as it is often quite impossible to foretell what findings will be. In many of them the type of country and prevalence of tsetse seem identical with adjacent heavily infected areas and yet the incidence of the disease may be small. In the Dan Ja district of Katsina the team had examined about 40,000 people and had found only a very sporadic distribution of sleeping sickness. The majority of towns and villages were practically free of the disease but 10-25% infection rates were found in occasional hamlets. Quite suddenly the team entered a very heavily infected part of the district in which two thousand or so cases were found in a fortnight.

WORK OF SLEEPING SICKNESS TEAM.

Unit.	Locality.	No. examined.	No. of cases.	Infection rate.	No. treated.	Percentage completing treatment.
TEAM 1.	KATSINA EMIRATE:—			%		%
	Galadima ...	37,538	6,493	17·3	6,491	99·9
	Dan Ja ...	52,983	3,664	6·8	3,497	95·6
TEAM 2.	Maska ...	6,948	1,085	17	—	—
	BIDA EMIRATE:—					
	Badeggi ...	11,623	1,194	10·27	1,162	97·3
	Jimadoko ...	16,144	2,090	12·9	2,089	99·9
TEAM 3.	Gbangban ...	34,898	3,860	11·0	3,849	99·4
	Kutigi ...	22,549	2,134	9·4	—	—
	KANO EMIRATE:—					
TEAM 4.	Tudun Wada ...	44,319	4,082	9·21	4,048	94
	Kiru ...	60,347	901	1·59	808	89·6
TEAM 5.	ZARIA EMIRATE:—					
	Kajuru ...	11,802	2,544	21·5	2,528	95·9
	Chikun ...	12,993	1,568	12·086	1,561	99·6
TEAM 6.	Zongon Katab ...	42,010	7,942	18·9	7,828	98·5
	KONTAGORA EMIRATE:—					
	Kakara ...	7,426	2,000	25·5	1,893	94·6
	N. Mashegu and S. Kontokoro ...	1,744	944	53·2	944	100
	N. Kontokoro ...	2,644	939	35·5	938	99·8
	Kumbashi ...	6,717	2,177	32·6	2,173	99·8
TEAM 6.	Rijau ...	20,162	2,768	13·7	—	—
	NUMAN (BACHAMA DISTRICT) ...	5,259	374	7·1	370	—
	Wamba (Plateau Province) ...	14,442	726	5·0	726	—
	Preliminary Surveys	4,965	65	—	—	—
	Total ...	417,495	47,550	—	40,897	—

30. As in 1935 the standard treatment has been 3 one-gramme doses of antrypol or Bayer 205 followed by 5 two-gramme doses of tryparsamide. At the time of diagnosis all patients have been given a trial dose of 0.3 grammes of antrypol or Bayer 205 in an attempt to detect the occasional case of idiosyncrasy. This trial dose has been additional to the main course of the treatment.

31. Fortunately, cases of collapse have been comparatively rare. Early in the year before the trial dose was instituted there were seven cases of collapse among the 6,491 cases treated in Galadima district of Katsina Emirate. All these occurred at the time of the first injection of antrypol. One patient, a man aged 30, of fair development, collapsed a few minutes after receiving the injection. He stopped breathing and his pulse was extremely weak. In spite of restorative measures he died in a few minutes. In view of this fatality the Medical Officer-in-charge of the treatment reduced the first dose of antrypol to 0.5 grammes. In spite of this, two cases of collapse of milder severity occurred.

32. In Zongon Katab district of Zaria Emirate two cases of collapse occurred after the trial injection of 0.3 grammes of Bayer 205, *i.e.*, two out of some 7,942 cases. One of these cases was unconscious for half an hour, but eight hours after he had recovered consciousness he was able to walk home ten miles. The second case was rather similar but after the initial recovery the patient had a second collapse of a much milder degree, one and a half hours later.

33. In one instance, in Kontagora Emirate, a patient failed to show any reaction to the trial dose of Bayer 205, but showed mild symptoms of collapse at the time of the first full 1 gramme dose. It can be said that since the institution of the system of trial small doses the number of collapses has been very small and there have been no fatalities. In two cases the collapse was very severe and the patient might well have died if he had received the full 1 gramme dose instead of the trial dose. There is no indication that these mishaps are any more common with antrypol than with Bayer 205.

34. One is forced to the conclusion that these are cases of true idiosyncrasy, fortunately very rare, but liable to react with explosive violence to a small dose of the drug. With the one exception mentioned above, all collapses have occurred at the time of the first injection. In one or two instances where susceptible patients have been given subsequent injections of the same drug, there has been no repetition of the symptoms. In no case has the intravenous injection of tryparsamide caused similar symptoms.

PRELIMINARY SURVEYS.

35. Preliminary investigations have been made in parts of Misau Emirate, Ningi Emirate, Numan Division of Adamawa and Southern Sokoto, areas about which we had very little information previously. Very little of the disease was found in the district of Sokoto Province and Misau Emirate visited. In Bachama district of Numan Division the infection seems to be localised to a small area on the north bank of the Benue. In Ningi Emirate sleeping sickness was found to be widespread and in significant quantities.

DISPENSARIES.

36. Sleeping sickness work has been carried on at twenty specially built dispensaries, and at six of the Native Administration general dispensaries. Eight more special sleeping sickness dispensaries are under construction. It can be said that, on the whole, the sleeping sickness dispensary system is a success. During 1936, the cases of this disease treated at these dispensaries numbered 10,450. The majority of the patients attended regularly to receive the full course of treatment.

In many of the pagan areas the dispensaries are extremely popular—large numbers of people coming in many miles (in some cases as far as forty miles) to ask for examination and treatment. Attendances at all of these dispensaries are, of course, purely voluntary.

37. In the majority of the Hausa areas these dispensaries have, unfortunately, not been so popular. Among the Hausawa, sleeping sickness is regarded as an extremely infectious disease; a sufferer from this disease is apt to be shunned by his fellows, and is often regarded as an outcast. Patients feel ashamed at having the disease and naturally try to conceal it as long as possible. Even when the patient is ready to admit his disease and to attend a dispensary for treatment, the local townspeople refuse to associate with one who is afflicted with a disease which they fear so much, and they may even go so far as to try and drive him out of their town.

38. As much general medical work as possible is done at these dispensaries, but even this will not always attract patients in some of the more conservative Hausa areas. One can only hope that in time this attitude will be broken down. At the present time, however, it can be said that the great success of the dispensaries in the pagan areas, more than compensates for the poor results obtained elsewhere.

THE CONTROL OF MINES LABOUR IN WAMBA AREA, PLATEAU PROVINCE.

39. The system of control of tin-mining labour described in the 1935 report has worked well. With few exceptions, all labourers engaged in tin-mining have remained for the full six weeks' period and have been examined for sleeping sickness before and after their period of work. All cases found have received a full course of treatment at Wamba Dispensary.

40. In 1931, the average infection rate of the population of neighbouring pagan villages from which large numbers of casual labourers are drawn was 4.8%. In 1934, at the time we first realised the great part the casual labour on the tin mines was playing in spreading sleeping sickness, a survey of these villages showed that the infection rate had increased to 14.3%. A resurvey of the same villages carried out in April, 1936, after the system of control had been in operation for twelve months showed that the infection rate had fallen to 3.1%.

41. It has been found that on an average 2-3% of all labourers engaged in tin-mining contract sleeping sickness during their six weeks' period of work. At various times, newly engaged labourers have been given prophylactic injections of Bayer 205 before being allowed to work. Results appear to show that a prophylactic injection of 1 gramme is sufficient to protect labourers for six weeks but is not sufficient to protect them up to three months. In November, 999 labourers were given such a prophylactic dose. Six weeks later all of them were negative, but nine were found to be positive at the end of three months. It is difficult to say definitely that none of the nine cases would have developed an infection if, at the end of their six weeks' period of risk, had they been taken to a fly-free area. Several of the teams have proved that the initial injection of 0.3 grammes of antrypol or Bayer 205 will sterilise both the blood and gland juice of the great majority of patients. After two or three weeks trypanosomes started to reappear in the peripheral blood, but could not be demonstrated in the gland juice until sometime later. Possibly the prophylactic injection of Bayer 205 did suffice to prevent any of the 999 labourers acquiring the disease during the first six weeks; on the other hand, one cannot be certain that in some cases its effect was not merely to increase the incubation period.

PREVENTIVE MEASURES.

42. A comprehensive Sleeping Sickness Ordinance has been approved and is to be enacted in 1937. This Ordinance came into force on the 21st of January, 1937, and is at present applicable to the Northern Provinces only.

43. The campaign of protective clearing carried out by communal labour has continued in the Illo, Kaoge, and Kwanji districts in Sokoto Province and is giving satisfactory results. Similar work is also being carried out in the Katsina and Zaria Emirates. Plans for the start of the campaign in Anchau, Ikara and Kudaru districts of Zaria Emirate have been prepared and preliminary investigations have been made by the Entomologist and by officers of the Geological Survey of Nigeria and the Agricultural and the Forestry Departments.

M. D. MACQUEEN,
Acting Deputy Director,
Sleeping Sickness Service.

APPENDIX C.

Report on the Medical and Pharmacy Schools.

This report deals with the following institutions:—

A.—Medical School, Yaba and Lagos.

B.—School of Pharmacy, Yaba.

A.—MEDICAL SCHOOL.

1. *Premises*.—A semi-permanent building, in which Physiology and Histology were taught, was condemned by a Board of Survey in October, 1936, and demolished. A sum of £1,350 has been voted for the erection of a new semi-permanent building.

2. *Staff*.—The permanent staff consisted of the Deputy Director of Medical Schools, the Medical Tutor, the Surgical Tutor and the Technical Instructor. In addition to their normal duties, a number of Medical Officers rendered valuable assistance by conducting special classes or by offering helpful criticisms.

3. *Students*.—The academic year opened with eighteen students on the roll. Of these three were in their fourth year, and fifteen in their fifth or final year of study for the Medical Assistant's Certificate. In addition, five students who had passed the pre-medical examination, were admitted in September.

4. *Examinations*.—The examinations under the Medical Practitioners and Dentists Ordinance, 1934, were conducted in January. The details were as follows:—

	No. of Entrants.	Successful.	Referred.	Dismissed.
First Professional Examination: Sections I & II ...	3	2	...	1
Final Professional Examination: Section I .. ,, II (a) (b) (c) ...	13 14	8 4	1 7	2 3

5. *Reorganisation of the School*.—Several important schemes, relating to the reorganisation of the School of Medicine and calculated to raise the standard of professional efficiency, were considered during 1936. These schemes were thoroughly investigated but it is too early yet to report upon any developments.

B.—PHARMACY SCHOOL.

1. *Equipment*.—A few additions were made to the equipment of the school, the most noteworthy being a small autoclave and an electric drying oven for the dispensary. For the esters laboratory a "Hyvac" vacuum pump and an electric rotary blower were purchased. Other small additions were made to the equipment these being chiefly reagent bottles and chemical glassware. From the Zaria school, which closed down in May, some mortars and other pharmaceutical apparatus was obtained by transfer.

2. *Students.*—The session opened with the students arranged as follows:—

Class I.—Students preparing for Part One of the Dispensers' Qualifying Examination, 3.

Class II.—Students preparing for Part Two of the Dispensers' Qualifying Examination, 4.

Class III.—Students preparing for the Dispensers' Examination (Old Regulation), 4.

Class IV.—Students preparing for the Chemists and Druggists, 2.

Class V.—Medical Students studying Pharmaceutics, 3.

At the end of December, owing to the examination in June and December, the classes were arranged as follows in readiness for the new session in 1937.

Class I.—One.

Class II.—Four.

Class III.—Two.

Class IV.—Nil.

Class V.—Nil.

3. *Examinations.*—Examinations were held in July and December and the statistics are set out below:—

1.—Dispensers' Qualifying Examination, Part One.

Date.	No. of Entrants.	Successful.	Referred.	Dismissed.
July	2	2	—	—
December	1	—	1	—

2.—Dispensers' Qualifying Examination, Part Two.

Date.	No. of Entrants.	Successful.	Referred.	Dismissed.
December	3	1	2	—

3.—Dispensers' Examination (Old Regulations).

Date.	No. of Entrants.	Successful.	Referred.	Dismissed.
July	7	3	2	2
December	1	—	1	—

4.—The Chemists' and Druggists' Examination.

Date.	No. of Entrants.	Successful.	Referred.	Dismissed.
December	2	2	—	—

APPENDIX D.

NOTES RELATING TO "LINES" OR COLLECTIONS OF BUILDINGS USED OR INTENDED TO BE USED EITHER TEMPORARILY OR PERMANENTLY FOR THE HOUSING OF LABOURERS.

1. *Single Lines*.—Lines shall be constructed so as to consist of a single row of rooms.

2. *Maximum number of rooms*.—No line shall consist of more than twelve rooms.

3. *Siting of Lines*.—Lines shall be built on dry and, where possible, raised sites, and, where the lie of the land allows, on the eastern slope of a hill and where a sufficient supply of drinking water is easily accessible. They should be situated at least a half a mile from any swamps and should be constructed above highest flood level. No line should be constructed within thirty feet of a bank or cutting which interferes with lighting, ventilation and drainage of a line.

4. *Clearing Round Lines*.—A clear open space of a minimum of thirty feet shall be left all round the line. Provided, however, that where lines face each other the distance between them shall not be less than forty feet.

When built end to end or at an angle to each other the distance between gable ends shall not be less than twenty feet.

No sheds for animals or structures of any kind other than kitchens shall be erected in this open space. Kitchens shall not be sited nearer than twenty feet from lines. Latrines and bath-houses shall not be constructed nearer than a hundred feet from lines.

5. *Construction of Individual Room*.—Each room shall comply with the following conditions:—

(a) It shall have an average height of at least ten feet and shall in no place be less than eight feet in height.

(b) The floor area shall not be less than one hundred and twenty square feet nor less than nine feet in length or breadth. The floor shall be raised one foot above the surrounding ground and shall be made of four inch concrete with a smooth cement surface.

(c) For purposes of ventilation and lighting each room shall be provided with a door, the inside measurements of which shall be six feet by two feet six inches, and two windows the combined openings of which shall not be less than twelve square feet. The height of the window sill from the floor shall not exceed four feet. The windows shall be louvred and fitted with iron bars or expanded metal to keep out thieves. They shall be placed on opposite sides of the room to ensure cross-ventilation.

(d) The walls of lines shall be constructed of solid mud, *pisé de terre*, sundried or burnt bricks, concrete blocks, reinforced concrete, sandcrete or masonry, rendered with cement and lime washed. In exceptional cases (where suitable mud is unobtainable) walls may be made of one inch weather boarding treated with solignum or other wood preservative. In no case shall mixed mud and wattle be used as materials for walls owing to danger from rats, plague, etc. All internal walls shall be whitewashed annually. Partition walls between rooms shall be carried up to the ceiling or roof.

(e) The roofs of lines shall be of corrugated asbestos, corrugated iron, tiles, tarred wood and felt, or shingles. The roof shall over-hang on one side of the lines to provide protection from sun or rain when the occupant sits on the small verandah in front of his room. The eaves of the overhanging roof shall be at least five feet six inches above floor level. Verandahs shall not be closed in. There shall be a small plinth five feet in depth running along the front of the lines bordered by a drain to catch rain from the roof.

(f) No more than two labourers or a labourer, his wife and child shall occupy a single room.

6. *Provision of Latrines.*—For each pair of lines (twenty-four rooms) there shall be a male and a female latrine each with three squatting-plates over fly-proof modified fly-trapped salga latrines.

Such salga latrines shall have the following dimensions three feet wide, ten feet long and from twelve to thirty feet in depth according to the nature of the soil and the level of the subsoil water. The excavation shall be roofed over with azare beams or other wood not affected by dry-rot or termites, covered with flattened kerosine tins and a layer of smooth laterite. The fly-trap, placed outside the latrine, may be made from a kerosine or petrol tin the top of which has been replaced by wire gauze and across the bottom of which a slit one inch in width has been cut. A drain shall be cut round these latrines to carry off rain water from the roof and surface water. In crumbling soil, the excavation shall be shored-up to prevent falls of ground.

Male and female latrines shall be separated by a distance of at least twelve feet, the interval being used, if desired, for a drying shed and circular field incinerator for the burning of refuse from the lines served. If the nature of the ground or the high level of the subsoil water does not allow of the fly-trapped modified salgas, a septic tank with automatic tipper or pan latrine with pans placed below the level of the floor of the latrine shall be used. The contents of these pans shall be emptied into a fly-trapped salga or in trenches one foot wide, two feet deep and six feet long situated at a distance of not less than a quarter of a mile from the lines. Promiscuous defaecation shall be severely dealt with.

7. *Provision of Incinerators.*—One circular field incinerator with drying shed shall be provided for each pair of lines on a site adjoining the latrines. This structure shall be protected from the rain by a piece of roofing made from old pan or from beaten out kerosine tins.

All combustible refuse shall be burnt in these incinerators and the remainder shall be buried in a pit and covered with ashes.

Each occupant of a room is expected to remove the rubbish from his room to the drying shed or incinerator by 8 a.m. every day.

8. *Prohibition of Cattle, etc., in Lines.*—No cattle, sheep, goats or donkeys shall be kept in the lines.

9. *Storage for Fuel.*—Wood for fuel shall be kept near the kitchens and not near the houses on supports off the ground so as not to give any protection for rats and other vermin.

10. *Water Supply.*—A water supply shall be provided. If well water is obtainable, such wells shall be protected from the possibility of surface pollution by properly constructed stone, concrete or cement parapet walls with an apron surround four feet from the well parapet and graded away from the well mouth. Wells shall also be protected from subsoil pollution by being sited not nearer than 150 feet from a pit latrine and by being lined with brick or stone cement to a depth of twelve feet or first impervious stratum. They shall be equipped with

a pump or, failing this, a bucket and windlass, the bucket being chained so as to obviate the utilisation of possibly contaminated house utensils for drawing water.

If the water supply for the lines is derived from a spring this shall be boxed in and the water piped to a two chamber tank, passing over a filter of sand and gravel in the first chamber and drawn by taps from the second service reservoir. The catchment area of this spring shall be protected by being surrounded by an unclimbable fence.

Water derived from rivers or from other probably contaminated sources shall be pumped into batteries of tanks, the first series of tanks serving for sedimentation, a solution of chlorinated lime being added to the water in its passage into the second where the purifying action of the solution takes place, and thence to a third tank which becomes the service reservoir and is fitted with a number of taps. In the case of river water containing a heavy sediment, arrangements for preliminary clarification with alum in the first tank shall be made.

11. *Ablution and Clothes-washing Facilities.*—Ablution and washing arrangements shall be provided. They shall not be sited close to a drinking water supply. Showers afford the most economical use of water for bathing. Washing slabs shall be furnished on a basis of one for every hundred persons. They need only consist of a cement slab with a few slightly sloped cement tables raised about a foot. Care shall be taken to ensure that the soapy water passes through a simple soap trap made of a perforated kerosine tin filled with dried grass before being carried along open concrete channels to the outfalls.

12. *Market and slaughter slab.*—At a distance of not less than a hundred yards from the ends of lines, an area shall be reserved for market purposes. As a temporary measure and until funds become available for more permanent structures, market stalls may be made with azare wood and roofed with thatch, plantain leaf or the midrif of palms. They shall be arranged in rows not less than thirty feet apart and with a distance of twenty feet between ends. Each stall shall have a depth of fourteen feet and a frontage of eight feet, being divided into two equal halves by a dwarf partition down the long axis of the shed. A shed with concrete floor and tables shall be provided for butchers' meat and a separate shed removed from the fresh meat stall shall be reserved for offal.

At a distance of a quarter of a mile from the lines and market an area shall be reserved for the slaughtering of animals. A small cement concrete slab covered with pan or temporary roofing shall be constructed at this place graded to a sump containing a bucket or dustbin into which faeces, blood and washings can flow.

A fly-trapped salga shall be made in close vicinity to the slaughter slab into which the contents of the bucket or dustbin can be thrown.

13. *Dispensary.*—A dispensary shall be provided consisting of two rooms 12 feet by 16 feet in size, a store of 12 feet by 8 feet and two small observation wards of two beds 12 feet by 16 feet in size. The equipment shall include a simple first aid set for emergency use, especially in cases where the lines happen to be situated at a distance from the nearest Government hospital or dispensary.

14. *School.*—Where there are numbers of children (say in excess of ten), a school in the lines with playing field attached is usually a popular feature and shall be provided. This may serve for church services on Sundays.

15. *Compound Villages*.—As an alternative to the lines described above, the area can be laid out on the village principle with compounds 60 feet by 80 feet or 50 feet by 100 feet in size. This type is rather more costly but allows of normal family life and is correspondingly popular—a plan of a type layout of this character will be furnished on application to the Deputy Director of Health Service.

16. *Sanitary Staff*.—A sanitary headman and three sanitary labourers shall be provided for the first hundred persons, two additional sanitary labourers shall be provided for the second hundred persons and one additional for the third and each subsequent hundred persons.

These labourers are responsible for latrines, incinerators, water supplies, washing places, cleaning, making of ornamental gardens between lines, anti-malarial and general anti-mosquito activities including drainage, oil-spraying, etc. Where more than five hundred labourers are employed a European Village Master shall be appointed.

17. *Maintenance*.—Buildings, etc., shall at all times be kept in a good state of repair—both inside and out.

P. S. SELWYN-CLARKE,
for Director of Medical Services.

COMPARATIVE DIAGRAMS OF DISEASE GROUPS
TREATED IN GOVERNMENT INSTITUTIONS
1935 & 1936

1935

PER MILLE

Epidemic & Infectious Diseases	358
Skin Affections	163
Digestive System	105
Nervous System	89
External Causes	82
Respiratory System	74
Other Diseases	66
Genito-urinary System	22
Organs of Locomotion	17
Circulatory System	11
III-defined Causes	5
Puerperal State	5
Diseases of Infancy	3

1936

PER MILLE

Epidemic & Infectious Diseases	352
Skin Affections	179
Digestive System	114
External Causes	87
Respiratory System	74
Other Diseases	73
Nervous System	50
Genito-urinary System	26
Organs of Locomotion	20
Circulatory System	12
III-defined Causes	6
Puerperal State	6
Diseases of Infancy	3

EPIDEMIC, ENDEMIC & INFECTIVE DISEASES
TREATED IN GOVERNMENT INSTITUTIONS
TOTAL CASES 260,324

1936

RATIO PER
100 CASES

Yaws	42.5
Other Diseases	24.7
Malaria	15.2
Gonorrhoea	7.1
Syphilis	7.1
Dysentery	2.1
Tuberculosis	1.3

TOTAL DEATHS 1,054

RATIO PER
100 DEATHS

Other Diseases	40.2
Tuberculosis	18.3
Yaws	16.4
Dysentery	13.3
Malaria	5.6
Syphilis	4.1
Gonorrhoea	2.1

GENERAL SYSTEMATIC & PREVENTABLE DISEASES
TREATED IN GOVERNMENT INSTITUTIONS
TOTAL CASES 718,599

1936

RATIO PER
100 CASES

Epidemic & Infectious Diseases	35.2
Skin Affections	17.9
Digestive System	11.4
Other Diseases	8.9
External Causes	8.7
Respiratory System	7.4
Nervous System & Sense Organs	4.9
Genito-urinary System	2.6
Bones & Organs of Locomotion	1.9
Circulatory System	1.2

TOTAL DEATHS 3,230

RATIO PER
100 DEATHS

Epidemic & Infectious Diseases	27.2
Respiratory System	18.9
Other Diseases	12.9
Digestive System	11.5
External Causes	9.4
Genito-urinary System	6.2
Circulatory System	5.4
Nervous System & Sense Organs	4.3
Skin Affections	3.4
Bones & Organs of Locomotion	1.0

